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LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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MANNING OUR NAVY.

It is said in naval circles that the enthusiastic advocates of a war-like demonstration by the United States naval forces in Asiatic waters, which would necessitate voyages of over 5,000 miles from San Francisco and nearly 15,000 from New York, give little or no intelligent consideration to the facts which are constantly vexing the officials of the government who are charged with caring for our interests in various parts of the world.

One of the most serious problems which confronts the administration in sending naval vessels abroad is the impossibility of furnishing them with the necessary complement of men to handle the ships. The law allows but 9,000 enlisted men in the navy, which is the same number as that allowed when the navy was half its present fighting strength. It takes 15,000 men to keep all the present ships in commission on a strictly peace footing. In time of war the navy would need 35,000 men to equip its vessels. The only possible way of making 9,000 men go around now is to keep about half the ships in navy yards, and it will be impossible to commission the Maine, Texas, Olympia or a large number of the latest vessels without putting other vessels out of commission in order to secure their men. Under the present law and appropriations it is impossible to keep more than half the ships at sea, and while the naval lists to the uninformed might appear to warrant the United States in sending a dozen ships to China, as a matter of fact, there are scarcely any more than that number ready for effective service outside of the navy yards.

INTERNATIONAL SAILING RULES.

In the act of Congress approved August 19, 1890, and amended May 28, 1894, entitled "An act to prevent collisions at sea," article 9 was omitted, and article 10 of the act of 1885 inserted in its place. Mr. W. W. Goodrich, the framer of the act and counsel to the Maritime Association of the Port of New York, gave as his opinion that the repeal of article 9 of the act of 1890 brought into force again article 10 of the act of 1885. This article relates to the lights to be carried by fishing vessels, and was the article to which Great Britain raised objections when she was asked to adopt an international code of rules to prevent collisions at sea, as determined by the recent international marine conference at Washington. In order to make assurance doubly sure that the repeal of article 9 of the act of 1890 meant the revival of artcile 10 of the act of 1885, a bill to that effect was introduced a short time ago in the House of Representatives, and the bill was passed by the House and Senate and approved by the President. This removes every obstacle from the way of Great Britain's adopting the international rules, and, as already reported, they will go into effect the first of next March, that being the date fixed by proclamation of the President.

MAXIM'S AIR SHIP.

Every fresh report concerning Maxim's successful flying machine adds to the marvel of this new wonder of the air. Its large two-bladed screws, fashioned like the propellers of a ship, would seem to be the most powerful ever made, developing one horse-power for every two pounds of their weight. The novel boiler of tubes gave a pressure of 320 pounds for the triumphant flight, and made the machine speed through the air like a locomotive for 500 yards at the rate of forty-five miles an hour. With its surplus buoyancy of 2,000 pounds, the miraculous air-ship actually broke loose from its check-rail and soared even higher than Maxim wished. The inventor has evidently discovered Stockton's "principle of negative gravity," and will find his future problem to be to keep his machine on earth.

NEW TONNAGE.

Official numbers have recently been assigned by the commissioner of navigation to the following lake built craft: Steam, Tacoma, Chicago, 76 tons; Minnie E. Kelton, Port Huron, 623 tons; Unique, Port Huron, 381 tons, and the yacht Liberty H. Ware, Cleveland, 45 tons. The large steel steamer I. W. Nicholas, launched on Saturday last from the yards of the Cleveland Ship Building Co. is one of the 4,000-ton class.

OUR JAPAN AND CHINA TRADE.

While the war between Japan and China may seriously affect trade between them and European countries, it can hardly interfere to any large extent with that of the United States, our commerce with the two belligerents being really in its incipiency. This is made plainer by the statistics of trade for 1893 with the two nations.

During that year our imports from China were valued at $20,636,525, an increase from 1889 of only $3,608,113. The principal articles imported were as follows:

Tea	$7,413,989	Matting	$755,679
Raw silk	5,470,380	Rice	528,090
Raw wool	1,812,260	Furs	512,382

Half a million for each would cover the values of opium for smoking, skins and hides, and hat and bonnet goods, while the third of a million dollars suffice for silks and leather and a fraction over a quarter million for coffee. The exports from this country were comparatively trifling, considering the population of the "Celestial Empire," and reached in value the sum of $3,900,457. Of this total two articles took in almost the whole amount, viz.: mineral oil, $1,800,437; and cotton manufactures, $1,638,657. In 1891 the exports of cotton goods were $5,334,860, showing for 1893 a falling off of $3,696,203.

With Japan our trade in 1893 was larger, for imports, than with China, their value amounting to $27,454,220, the principal articles being:

Raw silk, $14,791,633; silks, $3,347,834; tea, 5,649,582; amounting to $23,789,049, while rice and rice meal, pottery, paper and its manufactures, camphor and other commodities amounted to $3,665,171. Our exports to Japan for the year were small, the total value being $3,195,494, mineral oil leading at $1,724,972, with tobacco $232,662 and flour $193,945.

Should the ports of Japan be blockaded successfully our imports of teas would be cut off, but that is hardly possible since China, at least at present, has not sufficient naval force to spare for that purpose with a superior Japanese navy at sea to keep it constantly employed in guarding its own ports. Japan appears to be confident of being able to take care of herself, and if events justify this belief Americans will still be able to enjoy the fragrant teas furnished them by the intelligent, spunky and patriotic people now supporting their Mikado in his war for their rights and the honor of their country.

WEATHER BUREAU SIGNALS.

The following notice has been sent out from the Weather Bureau at Washington:

At stations on the Great Lakes the display of the signal known as the "cautionary signal," will be discontinued, to take effect Sept. 1, 1894.

Paragraph 3 of general instructions, No. 8, 1891, is revoked, so far as its provisions apply to stations on the Great Lakes. The information signal, when displayed at stations on the Great Lakes, will, hereafter indicate that winds are expected which in the opinion of the forecast official may prove dangerous to smaller classes of vessels and tows, without reference to any stated velocity. Nothing in these instructions in any way changes those now in force at the wind signal display stations on the Atlantic, Pacific and gulf coasts.

The changes in the wind signal display system on the Great Lakes, enumerated in these instructions, will be given the widest possible publicity through the press at the regular and sub-stations on the Great Lakes.

It was stated at the Weather Bureau that the step was probably taken by the authorities in view of the fact that the information signal would fully meet the requirements of the marine and shipping interests at this port.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

Elphicke & Co. chartered the steamer J. J. Hill for 60,000 bushels of oats pt.

J. J. Rardon & Co. chartered the steamer City of London for 90,000 bushels to Buffalo at ⅞ of a cent.

C. C. Moreland has been appointed chief engineer of the steamer E. A. Shores, Jr., vice Samuel Weland, resigned.

Harvey D. Goulder, of Cleveland, was in Chicago Tuesday on business connected with the Lake Carriers' Association.

J. H. Randall & Son, yacht builders, have commenced to build a steam yacht 65 feet over all, 12 feet beam, 7 feet 6 inches depth of hold.

J. H. Randall & Son have sold their interest in the handsome steam yacht Contest, recently built by them, to Carl Anderson, of Chicago.

The schooner Butcher Boy, Capt. Sam Parker, owned by the Hamilton Merriam Lumber Co., was laid up indefinitely on her arrival at this port Friday with lumber from Marinette.

Capt. John Prindiville chartered the schooner P. S. Marsh for 35,000 bushels of corn to Port Huron at 1 cent; the steamer Quito for 90,000 bushels of oats to Port Huron at ¾ of a cent.

The steamer Nyanza broke two blades off her wheel against a sunken obstruction whilst winding around at the Illinois Central Slip C, Saturday night. She went to the dry dock for a new wheel Monday.

The Independent Tug Line has succeeded in raising the two engines and boiler of the steamer Lucille, sunk at the Lake View Water Works Crib. They will make no further attempt to raise the hull, as they do not consider it worth the cost.

The Chicago Ship Building Co. have a large force of men at work on the new dry dock they are building on the Calumet river. It will be completed by October next and will be one of the finest dry docks on the lakes. The Company will commence at once to lay the keels for two large steel tow barges for the Minnesota Steamship Co.

There are hopes of improvement in business on the lakes. The Lehigh Valley steamer Tacoma, Capt. Wm. Williams, which had been tied up at the dock at Buffalo 26 days, arrived here early Monday morning with coal. Her sister steamers, the Clyde and Oceanica, which had also been laid up, are on their way to this port with cargoes of coal.

P. H. Fleming & Co. chartered the steamer C. Hurlbut for 40,000 bushels wheat to Milwaukee at ¾ of a cent free; the steamer H. S. Pickands for 52,000 bushels oats and schooner Marengo 57,000 bushels oats, both for Port Huron at ¾ of a cent; steamer C. Hurlbut 60,000 bushels clipped oats and schooner D. K. Clint clipped oats to Buffalo at ⅞ of a cent.

Palmer, Cook & Calbick chartered the steamer Toltec and consort Miztec for corn to Buffalo at ⅞ of a cent; the steamer New Orleans to Buffalo for wheat at ⅞ and oats at ¾ of a cent; the steamer W. H. Wolf for wheat from Toledo to Buffalo at 1 cent; the steamer S. O. Neff for transferring wheat from Armour's A. elevator to the Illinois Central elevator.

At Miller Brothers' shipyard the steamer Uncle Charley was in dock for stopping a leak, repairs to shoe and stern bearing; the tug Calumet for repairs to bottom, some recalking and reironing and repairs to stern bearing; the barge Winona to have a leak stopped; the steamer Nyanza for a new wheel and repairs to her rudder; the steamer Fountain City for leak stopping; the schooner yacht Crusader received some repairs.

J. G. Keith & Co. chartered the steamer John Duncan for wheat to Buffalo at ⅞ of a cent; the schooner H. H. Badger for oats to Port Huron at ⅞ of a cent; the steamer Egyptian for wheat to Kingston at 2⅛ cents; the steamer John Duncan to transfer 65,000 bushels of wheat last Sunday from the Indiana elevator to the Armour A. elevator at $3.50 per 1,000 bushels free.

Capt. Zach Sargisson has resigned his command of the schooner Bertha Barnes in favor of Henry Matterson, who was mate with him seven or eight years. Capt. Sargisson intends to retire from sailing, and no man retires with a better or more honorable record, and his many friends wish him many happy years of life on land to enjoy his hard earned competency. He has sailed as master, mate and seaman 39 years for the N. Ludington Lumber Co. and the Isaac Stephenson Co., their successors, having been master of the schooner Barnes since she was built, 22 years ago, master of the brig C. J. Hutchinson eight years, the brig Mitchell two years, the schooner Queen of the West three years, mate on the schooner Tempest two years and seaman on the C. J. Hutchinson and Tempest each one year. Capt. Sargisson was born at Boston, a seaport town in the county of Lincolnshire, England, in 1833, and took to a seafaring life when between ten and eleven years old and sailed on salt water ten years, the last three years of which he was in the service of the British navy, before Sebastopol in the Crimean war in 1853, '54 and '55, and he arrived here in 1856 from the Crimea.

WILLIAMS.

DULUTH AND SUPERIOR.

Special Correspondence to The Marine Record.

Ore business has picked up considerably this month, and both Duluth and Two Harbors are doing a great deal of work at the ore docks. Big coal fleets are on the way, indeed so much is coming up that the dock men, who struck work without avail a few weeks ago, are consideriug that they better try again, and they believe they cannot fail to be successful this time.

The new North West is doing an excellent passenger business to Duluth and its effect is already noticeable in the increased tourist trade of the hotels and stores. Last trip she brought on 250 people and took out 320. This seems to be very largely an entirely new class of travel, and one that is most desirable. The other passenger boats, those of the Anchor, Western Transit and Chicago and Sarnia lines are doing as good business, if reports and appearances can be believed, as ever.

Prof. Mark W. Harrington and Inspector Norman B. Conger, of the Weather Bureau, have been cruising along the north shore of Lake Superior in a small boat the past two weeks, looking for current bottles dropped in the past season by vessel masters. They found not a bottle, undoubtedly for the reason that all the shore from Duluth northeasterly is rocky, and bottles drifting against it would be broken. They found, however, by the driftwood and currents that were visible, that the general trend of the lake streams was such as had been believed, and the work of mapping the currents is now said to be as complete as possible, so that this winter a set of current charts will be issued. Mr. Harrington also took a series of water temperatures, at different depths he found the water colder, though a variation of only about 4 degrees was noted in all the experiments made in deep water.

There is a good deal of excitement among the grain and elevator men over the Great Northern's cut in elevator charges. These reduce the summer storage charges about 50 per cent., but make practically no change in the winter rate. They are expected to have quite an effect in getting new wheat into this market, providing Minneapolis doesn't meet the cut, which she is undoubtedly intending to do. All the Duluth and Superior houses will come to it, in fact some of them have already announced a like reduction. The first cars of new grain for the crop of 1894 were received here Saturday, ten days earlier than last year, and way ahead of any former season. Farmers are quite generally threshing and loading grain direct into cars at their sidetracks, so that receipts of wheat will begin to be free this week. The crop is large though spotted, and there is every probability that the head of the lakes will receive not less than 40,000,000 and perhaps 50,000,000 bushels on the crop. Of this the mills will take from 12,000,000 to 15,000,000, leaving an excellent balance for the vessel interests as bulk freight.

Lake freights are steady and dull at about the same figures that have ruled steadily for some time. Wheat is being chartered in small lots at 1½ cents, and the shipments for last week were in the neighborhood of 500,000 bushels. The ore rate is still at 60 cents, and the lumber figure ia 13 shillings to Lake Erie. Immense quantities of lumber are going forward, no less than nineteen vessels being in port loading on one day last week. A new feature of this trade is the fact that many cargoes are being loaded from points in the interior, which can reach the lake here. One cargo of 900,000 feet was shipped last week to this city from an interior Wisconsin point, while the towns of Tower, Cloquet, Virginia and others in Northern Minnesota, are all sending lumber here for shipment. Duluth, which two years ago was not in the list as a large lumber seller for the Eastern market, will this season in all probability pass Ashland, indeed has already gone ahead of the burg on Chequamegon bay. Ashland shipped up to August 10 about sixty-eight million feet, while Duluth has sent out to the same date over sixty-five million. Besides what Duluth itself sent forward Superior has shipped a little, about eight million feet for the season.

DETROIT, MICH.

Special Correspondence to The Marine Record.

Sam'l F. Hodge & Co., the Riverside Iron Works, made repairs on the machinery of the Egyptian this week.

The steamer Nelson Mills passed this port on Tuesday with a tow of six barges, all laden with lumber, the aggregate amount being 3,000,000 feet.

C. W. Norton has chartered the schooner Reuben Doud for wheat to Oswego at 2¾ cents, and the John T. Mott and Monguagon to Buffalo at 1¼ cents.

Commander W. W. Mead, U. S. Navy, inspector of light-houses for eleventh district, with headquarters at this port, is examining the Portage Lake canal, with a view to establishing a system of lights there.

David Whitney, Jr., has sold to Pack, Gray & Co. and Mills, Carleton & Co., both of Cleveland, 7,000,000 feet of pine lumber, located on different mill docks on the Saginaw river. The consideration was $100,000, and the stuff will be shipped out of the river in 60 days.

The Sulphite Fibre Co. have had the John F. Eddy and consort John Shaw laid up here all season, the manager, Capt. Humphrey, not seeing his way clear to earn any money with them during the past few months. Both craft were chartered this week for wheat, Toledo to Buffalo.

The Detroit Boat Works are getting out the plans for a handsome wooden steam yacht to be built to order at a cost of about $25,000. The dimensions now quoted are 110 feet long, 16 feet beam and 9 feet deep, fitted with triple expansion engines and a coil or water tube type of boiler; estimated speed to be obtained sixteen miles an hour.

A report from Ogdenburg that a syndicate of that place had bought the steamer Idlewild and would run her in the excursion business on the St. Lawrence river is denied by the people supposed to be interested in the deal. President A. R. Lee, of the Star-Cole line, which owns the boat, says there has not even been an inquiry for the boat from any source.

The amended articles of agreement of the Parker Transportation Co., reducing the capital stock from $100,000 to $50,000, were filed in the county clerk's office yesterday. The capital stock is divided into 2,000 shares, of the value of $25 each. The capital stock is all paid in and is invested in vessel property. The shareholders are as follows: A. A. Parker, 458 shares; B. W. Parker, 458; Alexander Ruelle, jr., 100; B. F. Gaylord, 106; A. S. Munger, 222; Hugh W. Dyar, trustee, 356; J. S. Quinn, 300.

Relative to the confirmation of John H. Galwey as Supervising Inspector of Staem Vessels for this district Senators McMillan and Patton have both heard from Mr. Galwey's numerous friends, as well as from some of the parties who have filed protests against his confirmation. Galwey's friends it is said have received assurances that both senators will favor the confirmation of Mr. Galwey. Action is not likely to be taken in this matter, however, until Senators Brice and Sherman are given time to file their objections with the Senate committee.

The crew of the two-masted schooner Emma, who were arrested in Port Huron on the charge of assaulting and robbing Charles Gilman, a bumboat man, at Stag Island, in the St. Clair river, on the Canadian side, were arraigned before Commissioner Graves on Monday on the charge of piracy. The men pleaded not guilty and were held for examination. Under the decision of the United States Supreme Court that was secured by Assistant United States Attorney Wilkins in the famous Alaska case that the Great Lakes and the adjoining rivers are high seas, the crime the crew of the Emma is charged with is piracy and the punishment, under the United States statutes, is hanging. The Emma is a small schooner and when bound up the river from Lake Erie, she stopped at Stag Island, where Gilman had his boat tied to the shore. The crew of the Emma bought two dozen eggs from him, and after they had been delivered claimed that he had given them three less than they had purchased. After some wrangling Gilman gave up three eggs and pushed his boat away from the island. He then found that part of his line was missing and accused the crew of the Emma with having stolen it. That enraged the men and one sprang into the water and with a pike pulled Gilman's boat back to the shore. He reached for his revolver and threatened to kill whomsoever bothered him, but the crew of the Emma were also armed and all of the six, it is alleged, aimed their weapons at him and ordered him ashore without any more parleying. They then boarded his boat and, it is charged, stole his pocket book, his hatchet and his revolver.

DEATH OF AN OLD SKIPPER.

Special Correspondence to The Marine Record.

TORONTO, Can.—Marine men generally will be grieved to learn that another of Canada's esteemed and prominent vessel masters has passed away. Capt. Peter Thompson, 79 years of age, died here at his residence, Ontario street, last Saturday of dropsy. His experiences were not confined to local waters, for he had sailed in both salt and fresh for the past 63 years. During the last 35 years he had been closely identified with the lake marine, having sailed the vessels Thistle, Charm, Chieftain, John A. Macdonald, George Laidlaw, Queen of the North, T. C. Street, Edward Blake, Starling, Speedwell, M. L. Breck and others. The brigs George Laidlaw and Queen of the North, and the schooner E. Blake, he commanded on their ocean voyages in the South American and West Indian trade. The

old captain was well known and much respected, so that his funeral which took place at 3 o'clock on Monday afternoon was a very large one. Capt. Andrew Thompson, one of Canada's best known young masters, is the late Capt. Peter Thompson's eldest son. Several married daughters and sons remain to revere his gallant memory, and they have the heartfelt sympathy of the marine fraternity in their loss. J. A. C.

CLEVELAND, O.

Special Correspondence to The Marine Record.

Capt. C. E. Benham and family left port on the steamer Nahant this week for a lake cruise.

C. F. Palmer of the vessel owning and brokerage firm of Palmer Cook & Calbick, Chicago, is visiting here.

The handsome steel steam yacht Wadena built to the order of J. H. Wade by the Cleveland Ship Building Co. has just made the passage from New York to Gibraltar in twelve days.

A pontoon bridge at Columbus street has been fitted to take the place of the permanent structure, until the new bridge is completed travel will be suspended and the Center street bridge used for all traffic.

The fueling lighter Essen, owned by Pickands Mather & Co., recently damaged and sunk by the passenger steamer North West has been raised and thoroughly repaired and is now at work again as good as new.

The composite built steamer E. M. Peck was expeditiously repaired at this port last week and is now on Lake Superior. The total repairs, including six days dockage in the Cleveland Dry Dock amounted to about $4,000.

The steamer Saxon docked in the Ship Owners Dry Dock on Wednesday for survey and bottom repairs. Three bottom plates were found damaged through striking above the cut at the Limekiln crossing, the plates will be re-rolled and put back.

Mr. F. B. Smith, chief engineer of the monitor-type steamer Choctaw, is in port this week and speaks in high terms of the machinery of his boat. The Choctaw has been steadily at work all the season and is an economical running boat as well as being a large carrier.

The Cleveland & Buffalo Line of steamers are enjoying an excellent passenger trade, and are now making arrangements for a Niagara Falls excursion, beginning September 4 and extending to the 10th, at the low rate of $3 for the round trip, booking to Toronto and return at $1 extra.

The new steel steamer I. W. Nicholas will be fitted with the Williamson Bro.'s steam steerer, the American Ship Windlass Co.'s windlass and capstans also patent stockless anchors, self-stowing in the hawse-pipes, which have been especially fitted to accommodate the stowing of the new type of anchors.

The Cuyahoga river is in as filthy a condition as the Hamburg Canal in Buffalo or the branches of the Chicago river. As population increases it is evident that the river will become worse during prevailing dry weather and something will have to be done to flush out the creek if the health of the people is to be considered.

The steamer North West stopped at this port on Wednesday morning bound to Duluth with the largest number of passengers that she has carried this season. The reason she lost so much time coming down on her last trip was through detention for five hours at the Sault canal, and further delays made in order to pass through the rivers in daylight.

The passenger steamer North West had on board the Ole Polson theatrical troupe, including the well known actor N. B. Curtiss, when she called here on Wednesday morning and left again punctually on time, at 8 a. m. standard. The troupe intended to amuse all hands by giving one or more of their excellent renditions during the cruise up the lakes on the big white boat which, I understand, is being repainted almost every passage to keep her looking shipshape.

At a special meeting of the Lake Carriers' Association finance committee held in the office of President James Corrigan, on Friday, to discuss the nomination of J. H. Galwey, to the office of supervising inspector of steam vessels for the Eighth district, a series of resolutions condemning the appointment were adopted, and the secretary was instructed to telegraph the sentiments of the meeting to Senators Sherman and Brice, and to ask them to use all efforts in their power to prevent his confirmation. The same action was requested from Michigan and Illinois Senators by the vessel owners in those States.

The launch of the steel steamer I. W. Nicholas, at the yards of the Cleveland Ship Building Co., on Saturday last, was one of the most successful of the season. Promptly at 3 p. m. she slid down the ways. Miss Anna Minch, sister of the managing owner, christened the large craft in as composed a manner as if christening 4,000 tonners was an ordinary event to her. Among those who witnessed the launch were Mrs. Anna C. Minch, wife of the late Philip Minch, also her granddaughters, Misses Anna and Hattie, and grandsons Mr. Philip and George Minch; President Robert Wallace, and General Manager James Wallace, of the Cleveland Ship Building Co.; Vice President and General Manager John F. Pankhurst, of the Globe Iron Works Co.; Capt. Herriman, of Chicago, representing the Bureau Veritas, which has given the new boat the highest classification; Rev. Dr. and Mrs. John Mitchell, Mr. Jacob Englebrey, Capt, William Gerlach, Mr. W. A. Canfield, Mrs. C. C. Canfield, Miss Lotta Hausheer, Capt. Henry Stone, of the La Salle; Capt. James Stone and a number of others.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

The schooner Michigan after being laid up here nearly all season was chartered on Monday for salt to Chicago.

A deck load of iron ore sagged down the deck beams of the schooner Cobb arrived here this week and it will take a good deal more than her freight comes to this trip to make permanent repairs on her.

The opposition to John M. Galwey as supervising inspector of steamboats for the Detroit district is quite marked among vesselmen here, though his ability to fill the position does not seem to be questioned.

The canal boat men are pledging themselves to stand by their freight committee, and their action in declaring a 3½ cent rate for ten days from Monday, with notice of ½ cent advance a week later. The canal boat men are no longer disposed to carry freight for nothing and their recent action is well timed.

The passenger lines out of this port are doing a first class business this season. The Anchor and Western lines seem to be as well patronized as the big North West and more people than ever must be spending their vacation on the lakes, there is no World's Fair this year and this in a great measure accounts for the large number taking a Lake Superior tour.

The line managers do not intend to permit a cut-throat tariff to prevail in the lake traffic and in consequence held a meeting here Wednesday expecting to come to some mutual agreement whereby a pro rata division of the east bound traffic may finally be brought about. The meeting held in New York last week, could not get together so as to formulate rules and it ended in a fiasco so far as any action was concerned. The Buffalo meeting shows the same results.

The Cleveland *Leader* insists upon the new Cleveland built fueling lighter Pittsburg having been sent to Cleveland to take the place of the recently damaged lighter Essen and that she has now returned here while as a matter of fact, the Pittsburg has never left our port since she came here, however, she met with a casualty on Tuesday morning which will compel the Northern Line passenger steamer to fuel at Detroit until the Pittsburg has been surveyed, and repaired.

NEW LAKE AND RAIL RATES.

Chairman Midgley of the Western Freight Association of Chicago announced on Tuesday the following rates via. lake and rail from the St. Paul Minneapolis, and Minnesota transfer points to Boston, New York, Philadelphia, and Baltimore on flour, grain in sacks, grain products, potato flour, and oil cake; to Boston 24½ cents; New York, 22½; Philadelphia, 20½; Baltimore, 19½. These rates, which become effective August 15, are put in to meet the competition made to the Eastern points by the Soo line and other Northern routes. They are a reduction of five cents from the tariffs in effect at the present time.

LAKE YACHT BUILDING.

A Buffalo exchange hits yacht builders on the lakes rather a hard slap in the following strain:

"What is the matter with the naval architects of the lakes that some of them cannot design a modern yacht for fresh water work? Take the yacht fleets from Buffalo to Duluth, including Chicago and the crack racing boats are all back number, salt water yachts which, having done duty in ocean racing in their early days and out-lived their usefulness have been unloaded on some ambitious lake yachtsman.

"The Buffalo Yacht Club has Merle, a Burgess boat, and a good boat yet for her years. She was built in 1887, and at that time was a crack in her class. To-day, if pitted against a modern sloop, or even one of Burgess' later productions in her own class, she would be left far astern. When Vice-Commodore Birge was looking for a boat last winter, he went to Lawley's Boston yard and looked over the large list of boats on sale there. He finally purchased Wave Crest, a good schooner for cruising, but old as the hills and rebuilt several times. Allen Munroe went to Boston for a boat and brought back Caprice, a saucy jib and mainsail boat, but scarcely up to date in her class. A similar story could be told of other Buffalo yachts. What is true of our home club is equally so with every lake club.

"Now, why is it that we can't have a few distinctively home-designed and home-built yachts on the lakes?

"At least one Buffalo designer has produced a model on modern lines which gives promise of great speed. Among all the local yachtsmen who were looking for boats last year, he could not get one to build from his design. Why? Because they could go down to New York and buy a back-number boat for less money than they could build a new one on modern principles.

"When the lake yachtsmen begin building up to date boats yachting on the chain of lakes will take its proper place in the list, but not until then."

The foregoing, of course, deals exclusively with sail yachts, as in steam the lakes are fairly well represented. There is, however, just such an opening as our contemporary suggests, for a talented designer to encourage the building of speedy sail yachts for lake service. It can not be said that the skill is not here, only there seems to be a lack of the proper spirit of rivalry among yachtsmen to make it worth while for any of our best draughtsmen or naval architects to devote their attention to the specialty of designing small, speedy sail craft.

ITEMS FROM THE LOG BOOK.

Tne schooner Mineral State has been libeled for a dry dock bill at Port Huron.

Capt. Lon Cox, of the burned steamer Roanoke, and the crew have arrived at Port Huron.

The Puritan, of the Graham & Morton Line, collided with and sunk the ferry steamer Richmond at St. Joseph on Monday.

The largest cargo of coal ever carried to Chicago, 4,270 tons, arrived at that port this week on the steel steamer Selwyn Eddy.

The remains of Capt. Webb, of the steamer Grace Whitney, who died at the Sault a few days ago, have been sent to his late home at Marine City.

Thomas Crawford, employed as engineer on the tug Welcome at Chicago, had no license, and the fact being brought before the collector of customs, the tug was fined $100.

The Salvation Army steamer William Booth, while at the dry dock at Port Colborne, Ont., for repairs after being ashore, took fire Sunday night and burned to the water's edge.

The tug C. D. Thompson and the new tug C. L. Boynton, both of Port Huron, are going to test their speed in a race from that city to Sand Beach. The distance is a little over sixty miles.

John Poe, one of the crew of the barge Jupiter, attempted to murder Capt. Charles Ludwig when off Thunder Bay last Sunday, and when the vessel arrived at Port Huron the insubordinate flatfoot was placed in jail.

An improved search light, with a telescopic attachment, has been invented by Charles Potter, second mate of the steamer John Pridgeon, Jr., and is said to have power fully twice as great as the strongest search light in use at present.

At 7:30 on Saturday morning the work of unloading 2,946 tons of ore from the steamer Kearsarge was begun at Ashtabula, and at 6 o'clock Sunday evening she left with 3,225 tons of cargo coal and 225 tons of fuel. The new car dumping machine was used in loading the coal.

Owing to the dense smoke on Lake Michigan, resulting from forest fires, vessels have to proceed on some parts of that lake this week with a great deal of caution. Several strandings have been reported owing chiefly to the dense smoke, but no serious loss either to life or property has taken place.

The owners of the lately burned steamer Roanoke will give the crew 75 per cent. of the value of their personal effects which were lost. The captain saved the cash box from the ship, but it was stolen from Washburn, Wis. The owners say that only two years ago they spent $30,000 in repairs and refitting the steamer, and that she was in perfect order.

Recent Chicago advices state that it would appear that the underwriters are not as favorable to the scheme of equipping fire tugs with pumps and apparatus as might have been expected under the circumstances. It is presumed that they fear being asked to contribute to the expense of the installation to be used in saving property adjoining the river.

Regarding the famous light-house keeper, Ida Lewis, she is not the only woman light-house keeper in the country. Miss Harriet Colfax has been the light-house keeper at Michigan City, Ind., Lake Michigan, for the last twenty-five years, and her record of service is one of which any keeper might be proud. THE RECORD has several times been pleased to receive communications from Miss Colfax relative to the commerce and marine affairs at Michigan City.

Two barges in tow of the tug Myra went over the Du Plat rapids of the St. Lawrence last Sunday and landed on Murphy's Island below without a single fatal casualty. The tug managed to get away before the current caught her, but the two barges drifted unmanageable until the rapids were reached and then went over with the crews holding on for dear life. A wrecking expedition has been sent to Murphy's Island.

MARITIME LAW.

THE ELIZA LINES (four cases).

Circuit Court, D. Massachusetts. April 3, 1894. Nos. 3,545—3,550.

1. ADMIRALTY PRACTICE—CONSOLIDATION. Proceedings on separate libels relating to the distribution of the proceeds of a vessel, her cargo and freight, none of which can be wholly disposed of without regard to one or more of the others, may be consolidated and tried together, evidence previously given being applied only to issues with reference to which it was taken.

2. SAME—SUBSTITUTION OF CLAIMANT. The allowance of an amendment of a claim by substituting a new party as claimant is ineffectual, if such party fails to submit to the jurisdiction.

3. SAME—SUBSTITUTED SERVICE—CROSS LIBELS. In a suit for salvage against a derelict vessel, her cargo and freight, the master claimed the vessel and cargo, and pray for delivery of both, on stipulation. The owners of the cargo intervened, and prayed for delivery of the cargo to them without payment of freight, and also filed their libel for delivery thereof, in response to which the master filed a claim to the cargo, and an answer. He afterwards filed a libel against the cargo and its owners for payment of freight and general average, setting out the proceedings on the previous libels. Held that, as this libel was a cross libel to each of the prior suits, the court had power to order the monition thereon served on the proctors of the owners of the cargo, they being non-residents, and on such service to proceed to judgment against them personally in all matters covered by the cross libel; and a subsequent dismissal of their own libel, on their motion, did not afford the jurisdiction so obtained.

4. SAME—APPEAL—OBJECTIONS NOT RAISED BELOW. On a libel for freight against cargo and its owners, no exception to the joinder was made in the court below, and no warrant was issued against the cargo. Held that, on appeal, the objection must be considered as waived.

5. SHIPPING—BOTTOMRY—COMMUNICATION WITH OWNERS. Owners of a vessel having failed to supply money which they knew would be needed for ordinary disbursements at her port of loading under a charter, made by their agent, although they had ample time to do so, her master, a part owner, having no funds of his own, obtained, on bottomry, at a fair rate of maritime interest, money covering only ordinary port disbursements, to which the owners, when informed thereof, made no objection. Held that, they could not afterwards object to the transaction for the failure of the master to communicate with them in advance.

6. SAME. HYPOTHECATION OF VESSEL AND FREIGHT. The documents on which advances were made to a master consisted of an application for a loan on freight to be earned on a proposed voyage; a note signed by him, promising payment "fifteen days after arrival at the port of destination, or other intermediate port at which shall end the voyage," and containing a hypothecation of the ship and freight, and an assignment of enough of the freight to cover; and "rules for loans on freight," also signed by the master, which provided that the freight and vessel should be liable for payment of the loan. Held, that the loan was on bottomry of ship and freight, not on the general credit of ship.

7. SAME—FORM OF BOTTOMRY BOND. Provisions of the law of the flag, prescribing minute particulars for the form of bottomry bonds, even if they could effect transactions in a foreign port, are waived by the execution in such a port of a bottomry bond in a different form by the master and part owner without objection by the other owners.

8. SAME—LIEN OF BOTTOMRY. After bottomry of a ship and freight, she became derelict, and was taken by salvors into a port distant from her destination. The cargo was unloaded and sold, by order of court, on application of its owners; and the vessel was repaired by its owners, and proceeded on another voyage. Held, that the bottomry became a lien on the net salvage of vessel and freight, but was not entitled to the benefit of the repairs.

9. SHIPPING—FREIGHT—DERELICT BROUGHT IN BY SALVORS. A vessel abandoned by her officers and crew was brought by salvors into a port distant from the port of discharge under her charter. In a suit for salvage against the vessel, cargo, and freight, her master promptly claimed the vessel and cargo, praying for delivery of both on stipulation, and obtained delivery thereon of the vessel, which he proceeded with great diligence to repair for the purpose of completing the voyage; but the cargo was claimed by the charterers, as its owners, and sold on their application. Held, that the master was entitled to delivery of the cargo, on giving proper stipulation, and that the abandonment, followed by the possession of the salvors and of the court, did not deprive the vessel of freight, if prepared to earn it. The Kathleen, L. R. 4 Adm. & Ecc. 269, 2 Asp. 367, disapproved.

10. SAME. The right to freight, under such circumstances, did not depend on a quantum meruit, nor on diligence of the master and of the owners of cargo in applying for its possession; nor was it affected by the ordinary cesser clause in the charter, which does not extend beyond the liability of the charterer as such.

11. SAME—FREIGHT AND AVERAGE—SALE OF CARGO FOR INTEREST OF OWNERS. The sale of the cargo was made under an interlocutary order on application of its owners, not for necessity, but for their interest alone. Held, that it subjected them to the same liability as though they had obtained a delivery of the cargo, and, the voyage not having been wholly broken up otherwise, they were liable for the cargo's proportion of either pro rata or net freight, and of all just average charges.

UNDERWRITERS VERSUS CRUDE OIL.

At the meeting of the executive committee of the Chicago Underwriters' Association, held on Friday last, application from the Dunham Towing & Wrecking Co. for permission to burn crude oil was submitted, but, owing to other matters before the body, was not considered. In regard to lumber rates of insurance, the committee found that it had no power in the premises and that action upon the matter would devolve upon the association in quarterly meeting. This apparently settles the question until next October.

BUFFALO COAL SHIPMENTS.

The following statistics of the coal trade of Buffalo are furnished by Mr. William Thurstone, the secretary of the Merchants' Exchange:

Railway receipts and shipments of coal are not reported by request. Receipts by lake thus far this season, none. Shipments of coal westward by lake for month of July, 318,672 net tons, as compared with 254,070 tons in 1893, and 425,785 tons in 1892; for the season to August 1, 1,045,079 net tons as compared with 1,187,129 tons in 1893 and 1,194,215 tons in 1892. The receipts of coal by canal for month of July, 3,199 net tons, as compared with 12,227 tons in 1893, and 402 tons in 1892; for the season to August 12, 4,984 net tons as compared with 25,672 tons in 1893 and 4,491 tons in 1892. The shipments of coal by canal for month of July, 1,942 net tons, as compared with 909 tons in 1893 and 1,893 tons in 1892; for the season to August 1, 2,402 net tons, as compared with 9,739 tons in 1893 and 15,219 tons in 1892. The aggregate shipments of coal westward by lake thus far this year show a decrease of 142,050 tons under 1893, and a decrease of 149,136 tons under 1892. Freights on coal by lake during July, were: 25 cents to Chicago, 40 cents to Milwaukee and Green Bay; 45 cents to Racine; 35 cents to Saginaw and Bay City; 25 cents to Duluth, Lake Superior ports, Detroit and Toledo. A year since the rates were 50 cents to Chicago; 45 cents to Milwaukee; 40 cents to Green Bay and Saginaw; 30 cents to Duluth and Lake Superior ports; 30 cents to Toledo and Detroit; 55@50 cents to Racine and 35 cents to Bay City.

The distribution of the coals shipped this season to August 1st, was to the following places: 445,026 net tons to Chicago, 257,144 tons to Milwaukee, 90,740 tons to Duluth, 94,904 tons to West Superior, 11,500 tons to Gladstone, 40,120 tons to Toledo, 14,870 tons to Racine, 4,900 tons to Hancock, 1,300 tons to Houghton, 1,900 tons to Kenosha, 14,835 tons to Green Bay, 5,880 tons to Detroit, 7,825 tons to Bay City, 11,505 tons to Saginaw, 8,590 tons to Port Huron, 600 tons to Alpena, 5,150 tons to Marquette, 1,450 tons to Washburn, 900 tons to Manistique, 2,290 tons to Sheboygan, 650 tons to Grand Haven, 5,066 tons to Fort Williams, 16,280 tons to Manitowoc, 600 tons to Benton Harbor, 600 tons to Sand Beach, 1,150 tons to Ludington, 2,190 tons to Cheboygan, 650 tons to Owen Sound, 1,150 tons to St. Clair, 380 tons to Hamilton, Canada, 650 tons to Michigan City, 2,700 tons to Sault Ste. Marie, 2,810 tons to Lake Linden, 3,950 tons to Ashland, 400 tons to St. Ignace, 650 tons to Muskegon, and 700 tons to Sarnia.

THAT CANAL TO THE COAST.

Representative Baldwin, in speaking of his bill for a canal from the lakes to the ocean, said:

"I am reading criticisms for and against my canal bill and from marked copies of newspapers sent me and ranging from the Atlantic to the head of Lake Superior, there seems to be a general misunderstanding as to the object and purpose of the bill. That the bill is incomplete I admit, and I might say that it is purposely incomplete. I had drafted a bill embracing, as I thought, all the details, but advising with congressman and others interested, it was decided to strike out of the bill most of the details and introduce a bill of a general character, such as the present bill purposes to be. All the details can be worked in later when we have thoroughly investigated and formulated plans for carrying out this great scheme. One of the leading newspapers of the country criticises the bill on the ground that inasmuch as it provided for the location of this great waterway through Canadian territory, the evident purpose of the bill is the adoption of the Canadian route. Such is not the case at all. The question of a route is to be decided after the surveys have been made which will determine a practicable and feasible route. It is our belief that this route will be found from Oswego to Hudson river, but the bill in its general character must make provision for such route as the surveys might determine. The sentiment in Congress, if I may judge from a pretty thorough canvas, is strongly in favor of building the canal in such manner as provided in my bill.

"It is too late for even committee action this session, but the bill will be taken up early next session, and I believe we shall secure an appropriation for the survey, the indorsement of this administration for the scheme, and the beginning of the work under this administration to such an extent as will secure the completion of the work within the shortest time possible for its accomplishment. It is approximately estimated, and I believe the estimate under rather than over the facts, that the saving in freights by the completion of the canal connecting the Great Lakes with the Atlantic ocean will amount to more than $50,000,000 which, added to the saving in freight by present water transportation through the chain of lakes, will amount to $150,000,000 annually and be the means of saving to the people $200,000,000 more."

CORRESPONDENCE.

☞We do not hold ourselves responsible in any way for the views or opinions expressed by our correspondents. It is our desire that all sides of any question affecting the interests or welfare of the lake marine should be fairly represented in THE MARINE RECORD.

MARINE AND RAILWAY ENGINEERS.

CHICAGO, August 13, 1894.

To the Editor of The Marine Record:

In your editorial of July 19th, entitled "Marine Engineers and Railway Engineers," part of which is taken from the New York *Marine Journal*, stating Mr. Dumont's views in regard to marine engineers going on a strike for sympathy with the railroad men. I will say as an individual that Mr. Dumont must be greatly mistaken for there is no law to compel any person to work when he chooses to quit. Our oath, which we have all taken, is meant for other than keeping or compelling us to work; it means that he will perform his duties in accordance with the license he is in charge of, such as intemperance, carelessness, inability, etc. There was no need of the engineers of the lakes going out to help the Pullman sufferers, for it was too much out of our line of business, and besides, in my opinion, sympathetic strikes don't do what they are intended for, and especially the boycott. It is a failure as regards railroads or steamboats, but I do say that I think the marine engineers of those lakes require fully as much sympathy as they could give to Pullman's employes. To my knowing the marine engineer is the worst paid class of skilled mechanics in this Western country. Their wages have been cut down from July, 1893 to July, 1894, three times, which means a reduction of 20 per cent. to 30 per cent., and not even been asked if they would accept it. But they took it all well, for large steamboat men said they could not make any money. The engineers are, as a rule, the most faithful men in the world, and so poorly paid seven or eight months out of a year, he has got a privilege to work at his business on a large steamer for the terrible sum of $80; eight times $80 is $640 for a year's salary, while a railway engineer gets from $90 to $150 the year round and does not do a thing to his engine only pull the throttle and put on brakes, etc. A good steamboat engineer can be found down in the bottom of the engine room working to keep his boat from missing a trip, and helping his owner, but does he get any sympathy? I guess it don't look so.

JAS. A. MACAULEY.

TO UPBUILD MEXICAN SHIPPING.

The Mexican Congress has made the following provisions looking to the encouragement and development of the merchant marine of that republic. Congress, before adjourning, empowered the Executive to take all necessary measures for the creation of a Mexican merchant marine, subject to the following conditions:

1. Foreigners may be permitted to acquire national vessels.

2. The present legislation as to the make-up of crews is to be repealed.

3. Registration of native or foreign-built vessels under the Mexican flag, is to be facilitated by the abolition of the bond for the proper use of the flag.

4. The existing system of issuing shipping licenses is to be modified, and the rule making obligatory the renewal of such licenses is to be done away with.

5. A marine registry is to be established as a measure of protection to seafaring people.

6. Bounties for the encouragement of shipbuilding may be granted in accordance with the following principles:

a. The bounties for steamers shall be greater than for sailing vessels.

b. The amount of the bounties shall be assessed according to the gross tonnage of the vessel.

c. The bounties for the construction of engines and other auxiliary apparatus shall be adjusted to a standard unit not less than 100 kilograms in weight.

7. Navigation bounties may also be granted in accordance with the following principles:

a. The unit of the bounty shall be greater for sailing vessels than for steamers.

b. The bounties shall be proportional to the tonnage of the vessels and the distance run measured on an orthrodromic line.

c. The bounties shall be granted to all shipbuilders and owners, and for not more than ten years.

d. The navigation bounties shall be on a descending scale.

e. Sailing vessels of less than 50 tons and steamers of less than 70 tons are not to be entitled to a bounty.

8. A temporary reduction or removal of the import duties may be granted on materials of all kinds which enter into the construction of wooden, iron or steel vessels built. In order to enjoy the benefit of such exemption importers must give a bond for the duties to be cancelled when the employment of the material in the construction of the vessels has been proved.

9. The Executive may concentrate all matters relating to the national marine under the control of a new department.

10. Foreign vessels may be permitted to enter the coasting trade, but only in particular sections and for a given length of time, the executive always reserving the right to enforce the perogatives of national vessels in this trade.

COST OF MAINTENANCE.

The House Committee of four years ago, which reported the present Postal Subsidy law, had before it a report from Mr. Russell, then our consul at Liverpool, giving the following comparative statement of the cost of maintenance per man per day on vessels of various nationalities:

Norway and Sweden	22 to 24c
Russia	28c
Germany	36c
Denmark	23 to 27c
Austria	24 to 36c
Spain	30c
Great Britain	22 to 36c
United States	40c

Commodore Hichborn gave in his article the following comparative s tatement of the cost of operating American and foreign ships:

	American	British	French	German
Wages	$574.00	$350.25	$315.00	$325.75
Victualing	300.00	250.00	225.00	180.00
Cost per month	$874.00	$600.25	$540.00	$505.75

He did not give the source of this information, but on April 28, 1892, President Ivins, of the Brazil Line, told the Senate committee on commerce that the cost of operating the Seguranca, of his line, and the British steamer Glengoyle, of about the same cargo capacity, compared as follows:

	Seguranca	Glengoyle
Wages	$2,392.00	$950.00
Provisioning	1,036.50	306.00
Cost per month	$3,428.50	$1,256.00

A Philadelphia exchange has just taken the following pay tables from the shipping articles of steamers in that port, the first a first-class English passenger steamer, the second an English freight steamer of a regular line and the third an American steamer running to South America. The masters are generally paid by a private arrangement. For convenience in comparison the wages on the English steamers are turned into American currency at five dollars to the pound:

	English passenger	English freight	American
First Officer	$100.00	$50.00	$80.00
Second officer	65.00	32.50	55.00
Third officer	55.00	27.50	45.00
Fourth officer	45.00	.....	.....
Fifth officer	40.00	.....	.....
First engineer	150.00	80.00	125.00
Second engineer	100.00	60.00	80.00
Third engineer	90.00	45.00	60.00
Fourth engineer	75.00	40.00	.....
Fifth engineer	65.00	.....	.....
Oiler	.....	.....	45.00
Water tender	.....	.....	45.00
Purser	82.50	.....	90.00
Surgeon	50.00	.....	70.00
Carpenter	40.00	30.00	40.00
Boatswain	35.00	25.00	.....
Quartermaster	.....	.....	40.00
Cook	30.00	.....	60.00
Cook and steward	.....	32.50	.....
Second cook	.....	.....	40.00
Steward	20.00	.....	75.00
Stewardess	.....	.....	20.00
Second steward	.....	.....	30.00
Storekeeper	25.00	.....	.....
Firemen	22.50	20.00	40.00
Coal passers	.....	.....	30.00
Able seamen	22.50	20.00	25.00

On the American Line so much of the ship's company as is shipped on this side is paid as follows: Chief engineer, $150; assistant, $100; extra assistant, $85; third assistant, $65 to $70; fourth assistant, $55 to $60; fifth assistant, $40; electrician, $60; refrigerator engineer, $45; clerk, $25; storekeeper, $40; greaser, $50; firemen, $40; leading trimmers, $40; trimmers, $30; chief steward, $62.50; second steward, $40; saloon boys, $25; purser, $75; surgeon, $45. The rest of the officers and crew are shipped in England. On American sailing vessels the masters are usually paid on private terms, which are often a nominal salary, say $25 a month and 5 per cent of the value of the cargo. Mates get about $40; second mates, $37; stewards, $35; and the wages of seamen vary greatly with the condition of the labor market, at present they are from $16 to $20. The reports of shipping commissioners to the commissioner of navigation for 1893 show that at six principal ports the average wages paid to seamen in the domestic service was $25.30 and in foreign commerce was $21.15.

TEMPERATURE OF SATURATED STEAM.

Parties dealing in steam appliances, and those using them as well, are sometimes ignorant of the simplest laws regarding the properties of steam. An amusing instance of this was recently brought to light in a law suit in which the defendant was sued for the payment of a bill for setting a plant of boilers in accordance with the plaintiff's improved system. The contract guaranteed that the improvements would increase the temperature of the steam over that of the boilers then in use to the extent of 16 degrees. The plaintiff claimed that his guarantee had been fulfilled for the reason that the temperature of the steam was 307 degrees, whereas, on the boilers previously in use he found that the thermometer registered 291 degrees. The pressure of the steam indicated by the guage was claimed in both cases to be 60 pounds. The temperature of saturated steam having a pressure of 60 pounds, according to standard tables which are recognized by all authorities, is about 307 degrees. The plaintiff was not aware that the temperature which his improvements secured was no higher than that which would be produced by the steam from any boiler running at the existing pressure. By some accident, or grave error in the thermometer, he had found what appeared to be a lower temperature of the extent of 16 degrees than the actual temperature of the steam furnished by the old boilers, and in his ignorance of the properties of steam he erroneously attributed the increase to the improvements.

TONNAGE OF THE WORLD.

The present tonnage of the world, according to Lloyd's Register of British and Foreign shipping, excluding vessels below 100 tons, is as follows:

Flag.	Steam and Sail. No.	Steam and Sail. Tons.
British { United Kingdom	9,333	11,563,997
British { Colonies	2,526	1,224,285
America, United States of	3,285	1,964,359
Austro-Hungarian	347	298,674
Danish	844	323,801
Dutch	514	442,071
French	1,174	1,052,022
German	1,819	1,735,683
Italian	1,358	796,247
Norwegian	3,304	1,710,313
Russian	1,190	492,202
Spanish	877	564,404
Swedish	1,479	505,711

CANADIAN RAILWAYS AND CANALS.

The Supplementary Estimates for 1894-95 of the Dominion Government contain the following items: Intercolonial Railway, construction Cape Breton and Oxford and New Glasgow sections, and increase of accommodation at Halifax, $146,875; Annapolis and Digby Railway construction, $5,000; Rapide Plat, Lachine and Trent Valley Canals, enlargement and construction work, $456,875; Rideau Canal, completion and rebuilding of bridges, etc., $26,500; Corwall Canal, repairs and extension of sewer, $21,000; Welland Canal, repairs, etc., $19,500; Beauharnois Canal, repairs, etc., $14,500; Trent Valley Canal, building bridges, etc., $12,100; Carillon and Greenville Canal, rebuilding a portion, $4,700. Besides these items, $27,552 was voted for repairs and extensions to harbor and river work in Nova Scotia, such as wharfs, piers, etc.; $5,000 in Prince Edward Island; $6,720 in New Brunswick; $69,600 in Quebec Province; $91,500 in Ontario; $2,500 in Manitoba; and $15,500 in British Columbia. The Allan Steamship Co. are to receive $126,533 for the transportation of mails to Great Britain, and $10,000 was voted for the purpose of maintaining a new steamer for Government service, now in course of construction in England.

LLOYD'S REGISTER.

Lloyd's Register of British and Foreign Shipping for this year contains all the features of the previous one, with the advantage that everything included in it is under one cover. This obviates the necessity of consulting two volumes, as formerly. The new volume contains the names, classes and detailed information concerning the vessels classed by Lloyd's Register and the late Underwriters' Registry for Iron Vessels; and in addition, as far as possible, particulars of every seagoing vessel in the world, and of iron and steel vessels trading on the Great Lakes of 100 tons and upwards. In the appendix will be found details of the dry and wet docks, floating docks, pontoons, patent slipways, tidal harbors, etc., at all ports of the world; a list of steamers arranged according to their gross tonnages; detailed statistics respecting merchant shipping, and particulars of the war vessels belonging to all nations. A list is also printed in the appendix of the members and subscribers of Lloyds and the agents of Lloyds. For the convenience of subscribers, a supplement, containing the additions to and corrections in the register book, is issued fortnightly and forwarded gratis to subscribers. The rules for the building and classification of ships is also supplied with the above work. A new and important addition to the list of vessels included in this work is that of the iron and steel vessels trading on the Great Lakes, though it is by no means surprising that the shipping of the lakes has been recognized in this respect in view of the character of the vessels engaged in it at the present time. Messrs. Cornish and Thearle, representing Lloyds, made a tour of the lakes two years ago and the particulars of lake tonnage is a result of their visit.

MILWAUKEE TAXES ON VESSELS.

The deputy tax commissioner of Milwaukee has set about proving that the vessel owners of that port have no reason to protest against the assessment made on their property this year. Recently the vessel owners made a protest, claiming that they were assessed so high that they would be forced to take their property to other ports.

The assessed valuation of floating property in Milwaukee this year is $909,530. In 1893 the assessed valuation of property of this character was $432,960. The increase this year is therefore $426,570.

There are several reasons for this marked increase. One is that as a rule the property has been rated a little higher and nearer its true value. Then there were a number of steamers which were not assessed last year, through a mistaken idea that they were owned by Illinois corporations. Mr. Knell's list of these steamers is as follows: Wisconsin Steamship Co. steamers, Fred. Schlesinger, $65,000; George H. Dyer, $25,000; Thomas Davidson, $62,500. Milwaukee Steamship Co. steamers, Frank L. Vance, $37,500; Roswell P. Flower, $40,000; total, $230,000.

A report compiled by a census officer in Washington shows that vessels are assessed very low in Milwaukee as compared with other lake ports. The percentage of the full value at which the property is assessed in different cities is as follows: Cleveland, O., 33 per cent; Milwaukee, 22 per cent.; Duluth, 35 per cent. Detroit is given as "fair."

The steamboat men claim that twenty-five vessels at this port represent a value of $3,000,000. The tax commissioner has made a list of twenty-five of the most valuable boats and gives their assessed valuation. This foots up to $916,190, or only 30½ per cent. of the $3,000,000 the boats are worth according to the figures of the lake men.

This list is as follows: Inter Ocean Transportation Co. steamers, Minnesota, $20,000; Metacomet, $9,000; Massachusetts, $37,500; Merrimac, $40,000; Manhattan, $37,500; Manchester, $75,000; Mary Land, $100,000. Wisconsin Steamship Co. steamers, Fred. Schlesinger, $65,000; George H. Dyer, $25,000; Thomas Davidson, $62,500. Milwaukee Steamship company, steamers F. L. Vance, $37,500; R. P. Flower, $40,000; Topeka, $30,000; Pueblo, $30,000; P. D. Armour, $40,000; Denver, $27,500; Helena, $43,770; J. Schroeder, $15,000; John Plankinton, $40,000; Maggie Duncan, $12,000; Nebraska, $12,500; Omaha, $22,000; R. P. Fitzgerald, $36,000; Veronica, $22,420; Wiley M. Egan, $36,000; total, $916,190.

EFFECTS OF WATER PRESSURE.

A contemporary remarks that it is not unusual for bottles of champagne to be dipped and trolled in the sea, when there is no ice on shipboard, in order to get the wine to a palatable temperature, but never long enough to cause contact between the salt water and the wine. We can hardly tell what the effect on the wine would be if the bottle were immersed at a great depth for any considerable time. It is a fact, however, that if an ordinary glass bottle, tightly corked and sealed, be sunk in, say, fifty fathoms of salt water and left there for about ten minutes, it may, when brought to the surface, be found partly full of water. We say "may," because the pressure of the superincumbent mass of water will either force the water through the porous glass, force the cork into the bottle, or break the bottle. By a law of hydrostatics the pressure of water is in proportion to its vertical height and its area at the base. It is reckoned that the pressure of water on any body plunged into it is about one pound to the square inch for every two feet of the depth. Bottles filled with fresh water, tightly corked and sealed, have been sunk to great depths in the ocean, and where the enormous pressure has not burst the bottles it has driven in the cork and displaced the fresh with salt water. Pieces of wood have been weighted and sunk in the sea, with the result that the tissues have become so condensed that the wood has lost its buoyancy and will never float again. It could not even be burned when apparently quite dry.

A MAMMOTH DREDGE.

One of the most powerful dredges in the world has lately been constructed in Scotland. Formerly when it was required to make a channel through rock it was customary to drill and blast and then dredge out the broken material, but recently dredgers are sufficiently powerful to cut their way through rock without the necessity of preliminary blasting. The new dredge has been constructed to meet the requirements of an important channel at Bermuda and is of special workmanship. It is described as being the largest in the world, having a displacement of 2,200 tons, and is built entirely of steel; length, 208 feet; beam, 40 feet; depth, 17 feet 3 inches. The dredging gear, ladder and bucket chain weigh about 100 tons. The bucket ladder is fitted with ten powerful buffer springs, to cushion any shocks that may be experienced while at work. The vessel will dredge to a depth of forty-five feet below the water level.

THE MARINE RECORD

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CLEVELAND, O., AUG. 16, 1894.

SUPERINTENDENT-GENERAL S. I. Kimball, of the U.S. Life Saving Service asked Congress this week for an appropriation to mann the life-saving station at the mouth of Chicago river, also for a new station on Long Island, N. Y.

WHEN 6,000 tons of bulk cargo can be handled at a lake port in about thirty hours there can be no question of the modern equipment and facilities for quick dispatch with which the docks are furnished. The record this week shows that at 7:30 Saturday morning the work of unloading 2,946 tons of ore from the steamer Kearsarge was begun at Ashtabula and at 6 o'clock Sunday evening she left with 3,227 tons of cargo coal and 225 tons of fuel.

THE sudden increase of coal shipments to Duluth may cause a worse blockade at that port during the next few days than at present exists, and especially will this be the case if the hands engaged in discharging coal cargoes go on a strike again, as they now seem disposed to do. The only way for vessel owners to save themselves from a loss through unusual detention is to have the demurrage clause brought up in their charters and see that it is strictly collected for each day's loss of time.

THERE has been a slight improvement in the shipping outlook during the week and better things are now looked for as well in upbound freights as in ore rates. The breaking away from the pool agreement formerly in force between the lake and rail lines must exercise a derogatory influence on Chicago shipments, but this may not be felt much out of the general cargo traffic, though the grain trade is anything but flattering for the vessel owner to contemplate at the present stage, either from Lake Michigan or Superior. Coal, ore and lumber freights should now steadily advance, especially as an inclination is shown by shippers to obtain tonnage. Already soft coal rates are getting nearer where they ought to be, and ore from Marquette shows a slight improvement in late charters. With this outlook owners will no doubt be more positive in their chartering, and accept only those terms which will leave a margin of earnings after cargoes have been safely carried to their destination.

THE contract placed with the Chicago Ship Building Co. this week by the Minnesota Steamship Co. for two large steel freight schooners or consorts of the ordinary type is a departure in lake shipbuilding and a feature that was advocated in THE RECORD over two years ago. It is true that we have a number of large metal towbarges of the "whaleback" model, but hitherto it has always been customary to build schooners and barges, tugs, fueling lighters and tonnage of that class, exclusively of wood. As in large steamers, so in indiscriminate tonnage, the metal hull contains all of the advantages and few of the disadvantages of wooden bottoms, they are larger carriers, last longer, require less keep up, are as easily and quickly repaired when damaged, and may, on the lakes where little or no corrosion takes place, hold an A1 class for an indefinite period. There are, of course, some advocates of the wooden ship yet, and for special work craft will be built of wood for many years to come, but the best poor man's ship and the rich man's also for that matter, is the metal one.

COIL BOILERS.

Relative to boilers, Mr. Charles Ward at the recent international congress of engineers, held in Chicago during the Fair, stated that steam can be raised in a coil boiler without injury in a very much less time than in one of the locomotive or Scotch type, and that coil boilers are cheaper for the same power than either of these types. They can be taken to pieces and shipped in comparatively small packages to a vessel in any part of the world. Arrived at their destination, the old coil boilers (if the ship is so fitted) can be taken to pieces and the new ones lowered and connected together by the ship's company. They can be forced to greater safety than can a shell boiler, since in a properly designed coil boiler the circulation of water will increase with the intensity of the fire, and if steam is washed off a heating surface as soon as it is formed, no overheating or burning can occur. A serious explosion with this type of boiler is impossible.

We may cite as a rapid introduction of tubulous boilers, that Manning's yacht list this year shows no less than one hundred and thirty-nine yachts as having been fitted with them, and there is doubtless an equal number of yachts throughout the country using coil boilers not registered in any club, and therefore not contained in this list. The most serious trouble with tubes, however, is pitting from the inside, but this is also said to be common with a great number, if not all of the tubular boilers, and copper as a metal has been suggested for the tubes, although some favor charcoal iron.

The one point uncertain as yet about the tubulous boiler seems to be its durability—or useful life, and on this solely, from a commercial point of view, depends its universal introduction into the merchant marine of all countries.

The relative merits of the different types of tubulous boilers have so far proved themselves to be at least equal or even more so than the ordinary shell type of boiler, but there are a large number of tubulous boilers now on the market and experience only can determine the selection of the fittest for mercantile purposes.

TOWAGE VERSUS SALVAGE.

There seems to be a wrong impression abroad in some quarters relative to the terms of towage and salvage. The latter term originally meant the thing or goods saved from wreck, fire or enemies, it now signifies an indemnity or allowance made to those by whose means the ship or goods have been saved and the amount so awarded is either liberal or reasonable, that is, large or moderate, according to the circumstances, under which the services were performed.

Towage is the recompense allowed for what is simply a question of applying mechanical force with the element of danger, risk to property or any extraordinary action in accomplishing the service eliminated.

Hitherto there has been a clearer comprehension exhibited in the lake trade of the difference between towage and salvage services than has been known to obtain in any other part of the world, ordinary towage has strictly been so considered and even where a degree of danger, labor and skill has entered into the work it has been unusual to make any but the ordinary towing claims, supplemented at times for the loss of an anchor, hawser, or any hull, or machinery damage which the towing vessel might have received during the time engaged in assisting the craft temporarily grounded or otherwise disabled.

This commendable feature of the lake trade has obviated in many cases useless and expensive litigation, and it is not conducive to the best interests of lake commerce in the future to read such a report as was sent out from Chicago this week, and printed in all of the lake dailies.

The special referred to reads as follows:

CHICAGO, August 13.—[Special.]—Marine underwriters here were laughing to-day over the cheapest wrecking job in the history of lake marine. When the Lackawanna was ashore the other day on North Manitou Island, the steamer St. Joseph, which had been on the beach near her but had released herself, was summoned to the big liner's assistance. After a heroic effort the Lackawanna was pulled into deep water. The salvage which Captain S. O. Neff received for saving a boat worth $200,000 and a valuable cargo was $15.

It is not shown that a salvage claim might have been upheld in this case or that the service amounted to anything more than picking up a line in fine weather and smooth water, and putting a weight on it, the elements of danger and distress, labor or skill, enterprise of the salvors in tempestuous weather or a rescue of the property from impending storms in a little frequented locality all of these features were absent in this case, and that while $15 is but a small sum, any larger amount might have been extortionate under the circumstances, as the grounding in this, as in many other cases, simply might have meant an hour's detention on the part of either vessel.

Salvage claims are easier written or spoken about than enforced and collected, certainly, meritorious services must be rendered and prove successful with so many other conditions bearing on each particular case that even monetary agreements drawn up between the principal agents for all concerned, viz., the masters of the vessels, are sometimes set aside after the work has been successfully carried out. Such a decision comes to hand this week in a case cited by the Liverpool *Journal of Commerce*, wherein the court considered, "that the agreement in question was made by people who did not know what the law was." Now the point urged on behalf of the salved vessel was that an agreement having been made between the captains of the two steamers to the effect that the towing vessel was to be recompensed for her services, even if unsuccessful, its existence minimized the amount of salvage to be awarded for those services when brought to a successful termination, and so reduced their character from salvage to a mere kind of heroic towage. The principle in cases of ordinary salvage by towage is that, as they are instances of "no cure, no pay," the payment for the coal and time and labor expended in rendering the services, and the danger to themselves at which the salving vessels stand during the continuance of the work, is at risk all the time till the work is completed. Thus, as in case of failure it will all be dead loss, in case of success this must be regarded and the amount of the award increased in view of this risk. This is a case of "no cure, no pay." In the present case—if the captain's agreement had been regarded—it would have been a case of "imperfect cure, imperfect pay," and—as the salving vessel was sure of something even if her work were unsuccessful—she ought, when success crowned her efforts, to be satisfied with a less reward because she had less at risk. In the present case the court held that those who made the agreement did not know where they were. They were anxious to put themselves outside of the operation of a principle which they had not grasped, and so he felt that the justice of the case would be best met by ignoring their attempt at a settlement altogether. But there have been cases in which agreements of this kind have been made at sea, and have been held binding by the admiralty judges. Only last year an award was made where an agreement had been come to in the following terms: "It is this day mutually agreed "between the master of the towing and the "towed vessels that the E. shall be towed "into port if possible by the I., and whatever "services are rendered, and loss of time, "shall be settled between the respective owners." This agreement was held to entitle the salvors to renumeration, even if unsuccessful, though a sort of qualification was added to the effect that it did not eliminate the consideration of the risk run by the salving vessel in performing the service, because it did not minimize the danger to the salvors. They ran their risk whether they got paid for salvage or whether they got their renumeration by agreement, and a substantial sum was awarded, with the remark that it might have been exceeded if no agreement had existed between the parties.

LAKE FREIGHTS.

Although the ore freights are back to the old rates, namely, 40, 50 and 60 cents respectively from Escanaba, Marquette and the head of Lake Superior, there has been a better demand for tonnage during the past few days, and in one instance a steamer proceeded light to Lake Erie rather than carry 40 cent ore from Escanaba, yet the Marquette rate dropped 5 cents.

Brisk chartering has been done in coal and rates are steadily advancing, 60 cents being asked to Milwaukee, though nothing better than 55 cents has yet been secured. Portage 40 cents, though as more or less detention in discharging is expected, the Milwaakee rate is sure to go to 60 cents this week. Ohio ports to Duluth is fairly brisk at 40 cents; Buffalo to Chicago or Tawas, 50 cents; Bay City, 35 cents; Duluth, 30 cents, and Toledo, 25 cents.

Grain freights have remained steady from Duluth at 1½ cents to Buffalo, 3 cents to Kingston, with very light chartering. Chicago, instead of shipping about one million bushels a day, as usual in August, can not find enough to fill out the orders of line boats, though a steamer that could not find wheat in Chicago at ⅞ cent to Buffalo chartered to change ports at Toledo at 1¼ cents for the same destination. This is an advance of ¼ cent on the former Toledo rate to Buffalo. Corn and oats from Chicago to Port Huron went from ⅞ to ¾ cents, but there is little offering at any figure, yet a strong feeling has been evinced during the week not to carry grain at less than 1 cent per bushel.

TORONTO'S WATERWAY CONVENTION.

Invitations have been sent to the governors of North and South Dakota, Michigan, Illinois, Indiana, Wisconsin and Minnesota from the committee which has charge of the proposition for a convention to be held at Toronto in September for the purpose of considering the question of deeping the waterways to the coast, and making the project an international one. The lieutenant governors of Ontario, Manitoba and the northwest provinces, over 100 mayors of different cities and the presidents of boards of trades and similar associations have also received invitations.

PROPELLING IN LIVE WATER.

Mr. J. A. Normand, the well-known torpedo boat builder, of France, has recently published a note, in which he points out that under certain conditions a vacuum may be formed in front of the blades of a propeller. Thus, if a flat plate is moved through a mass of water, the water will tend to flow in behind it at a speed proportional to the square root of the depth of the plate below water level. At a depth of 40 in. a vacuum will be formed behind a plate moving at a velocity of about 14½ ft. per second, and at a depth of 20 ft. the water will lag behind the plate, if the velocity of the latter exceeds 36 ft. per second. This phenomenon can be well observed behind the rudder of a fast torpedo boat. At quite low speeds a hollow is formed behind the rudder when it is put over quite a moderate degree, and at high speeds this hollow may extend the whole depth of the rudder. Each small area of a propeller plade must act much in the same way as this, though in this case the velocity with which the water will tend to flow in front of the propeller blades will be increased by an amount nearly equal to the speed of the ship, and hence the phenomenon is not likely to become of importance except in the case of a shallow tug towing a heavy ship, or when the propeller of a torpedo boat is brought near the surface by the pitching of the boat. Some experiments made with the first-class torpedo boat No. 153, showed the loss of power due to this action very clearly. The boat, which was built for the French navy by M. Normand, has a propeller 6 ft. 8 in. in diameter by 7.8 ft. pitch. The boat was moored to a quay, and her stern hoisted up by sheer-legs so as to give different immersions to the screw. The height of water above the tops of the blades was in different instances 1.53 ft., 1.165 ft., .77 ft., and .54 ft. The engines in each instance were run at a number of different speeds, and the resulting thrust of the screw was measured by a dynamo-meter. At all depths of immersion the thrust was much the same, until a speed of about 120 revolutions per minute was reached, after which the thrust at the least immersion became markedly less than the others. Thus at this speed the thrust was about 2.6 tons in every case, but at a speed of 180 revolutions per minute the thrust was but 3.5 tons with the least immersion, 4 tons for the .77 ft. immersion, and about 6 tons for the other two cases. This, however, was the limiting value for the 1.165 ft. immersion, and at higher speeds but little increase of thrust was noted with this.

MARINE PATENTS.

Sprit for jibs. Gilman Hook, Harwich, Mass. Filed February 15, 1894. Serial No. 500,299.

Dumping-scow. William Fallon, New York, N. Y. Filed February 23, 1894. Serial No. 501,193.

Oar, William W. Fraker, Alma, Mich. Filed June 23, 1893. Serial No. 479,098. Claims—An oar consisting of the handle and blade made separately of wood, and connected by an elastic steel middle part, having a shank at one end inserted into the handle of the oar, and a fork at the other end between the parts of which fork the blade is secured,

Paddle-wheel for steamships. Alfred Cooper, Baltimore, Md. Filed February 28, 1894. Serial No. 501,881. Claim—1. A paddle-wheel for vessels, consisting essentially of a hub provided with four or more radial arms to which double-angled flukes or blades are attached; the blades consisting of two unequal portions, the shorter or inner end being placed at an angle to the said radial arms, while the outer or longer end is substantially at right angles to the inner end and forms the main driving surface to the wheel, substantially as set forth.

2. A paddle-wheel for vessels, codsisting of a hub provided with radial arms to which double-angled flukes or blades are attached, the blades having two portions at an angle with each other, and reinforced by a rib extending their entire length on the outer exterior surface which constitutes the working face of said blades when the vessel is advancing through the water.

Automatic boat-davit. Frank Ench, Hugo Fugel, and John L. Cooke, Oakland, and Gustav F. W. Schultze, Berkeley, Cal.; said Cooke assignor of one-half his right to John Dolbeer, San Francisco, Cal. Filed August 14, 1893. Serial No. 483,125.

Construction of vessels. Eliphalet P. Stratton, College Point, N. Y. Filed December 20, 1893. Serial No. 494,186. Claim—1. In the construction of vessels a series of longitudinal girders, secured at the respective extremities of the hull and to the intersecting transverse deck beams, said girders extending in depth above and below said beams and having vertical supports at each intersection.

2. In the construction of vessels a longitudinal girder entending continuously fore and aft, and secured at the respective extremities of the hull and to the intersecting transverse beams in line therewith, said girder extending below the beam sufficient to connect with a vertical support, and above said beams to form a hatch combing substantially as shown.

3. In the construction of vessels substantially of the type described, the combination with the continuous longitudinal girders of intermediate transverse beams or plates located at the forward and after ends of the respective hatches, and forming part of the hatch combing.

Compoundable ship or boat. Hermann Martini, Leipsic, Germany. Filed August 9, 1893. Serial No. 482,730. Claim—1. A compoundable ship or boat, composed of several long floating bodies united by a deck fixed above them and of stiffening trusses or frames, which are erected on the top of all or some of the floating bodies, the said ship or bnat being made in sections in the longitudinal direction and capable of being built up or taken to pieces, and of being lengthened or shortened at pleesure by adding or omitting some section.

Bow-facing car. Isaac D. Wright, Sedalia, Mo. Filed June 6, 1893. Serial No, 476,779.

NEW LIGHT KEEPER APPOINTED.

The Secretary of the Treasury appointed Walter H. Anning last week as assistant keeper of the light station at Charity Island, vice William J. Singleton, removed.

VISIBILITY OF LIGHTS.

A scientist has recently made some very interesting tests with lights at sea and declares that a white light can be seen further than any other. A red light comes next in carrying power and green ranks third. From 60 to 80 per cent of light is absorbed by red and 95 per cent by green glass. The percentage of absorption, of course, increases in ratio with the density of the color in the glass and the condition of the atmosphere has considerable influence on the range of visibility of the lights.

AMPLITUDES.

The following approximate amplitudes of the Sun's rising will be given each week in this column during the season of navigation: A second bearing of the Sun may be taken at sunset by reversing the bearings to read west instead of east, as, for example, N. E. by E. for a sunrise bearing would read N. W. by W. for a sunset, or E. 30° N. to W. 30° N.

LAKE ERIE AND S. END LAKE MICHIGAN LAT. 42° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 18	E. 18° N.	E. by N. ⅝ N.
Aug. 24	E. 15° N.	E. by N. ¼ N.

LAKE ONTARIO, S. END HURON AND CENTER LAKE MICHIGAN LAT. 44° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 18	E. 18° N.	E. by N. ⅝ N.
Aug. 24	E. 15° N.	E. by N. ⅜ N.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 18	E. 19° N.	E. by N. ⅝ N.
Aug. 24	E. 16° N.	E. by N. ⅜ N.

LAKE SUPERIOR LAT. 48° N.

Sunrise.	Bearing (degrees.)	Bearing (points.)
Aug. 11	E. 20° N.	E. by N. ¾ N.
Aug. 17	E. 17° N.	E. by N. ½ N.

With a compass correct magnetic, the difference between the observed and true bearings will be the variation for the locality. If there is any deviation on the course the vessel is heading at the time of taking the bearing the result after the variation is applied will be the amount of deviation on that course.

TORPEDO BOAT ERICSSON.

The steel torpedo boat Ericsson, while received her finishing touches at St. Louis after being built at Dubuque, Ia., left St. Louis on Wednesday via. the Mississippi river, gulf of Mexico and Atlantic ocean, for the Brooklyn navy yard, near where the trial trip will be had before the craft is turned over to the government. The Ericsson is only 150 feet long, 15 feet 4 inches beam, with an 11 foot hold. Every inch of space inside the hold is taken up with the engines, dynamo, coal bunkers, quarters for the crew and wardroom for the officers. President Diekey, of the Iowa Iron Works, her builders is confident that the Ericsson will come up to all the requirements of the government contract, and may exceed the speed limit. Supt. R. M. Hopkins, of the iron works, will stay with the boat until she is turned over to the government, when Lieut. R. N. Usher, of the United States navy, who is also on board, will take charge. Short stops will be made by the Ericsson for coal and mail at various river points and two days will be spent at New Orleans, where the boat will be docked, a new screw put on, and her compasses adjusted. After leaving New Orleans the Ericsson will reach the Brooklyn navy yard in four or five days, and in plenty of time to get ready for the trial trip Sept. 1.

VISIBLE GRAIN SUPPLY.

The stocks of grain in Chicago elevators last Saturday evening were 20,325,000 bushels of wheat, 1,445,000 bushels of corn, 551,000 bushels of oats, 130,000 bushels of rye, and 3,000 bushels of barley. Total, 21,454,000 bushels of all kinds of grain, against 20,811,000 bushels a year ago. For the same date the Secretary of the Chicago Board of trade states the visible supply of grain in the United States and Canada as 62,321,000 bushels of wheat, 3,164,000 bushels of corn, 2,854,000 bushels of oats, 230,000 bushels of rye, and 87,000 bushels of barley. These figures are larger than the corresponding ones a week ago by 2,320,000 in wheat and smaller by 574,000 in corn. The visible supply of wheat for the corresponding week a year ago decreased 555,000 bushels.

MARINE RAILWAY AND CANAL PROJECTS.

The river and harbor appropriation bill, which has been agreed to in both houses, and is now awaiting the president's signature, provides for three new items which senators have long been trying to have adopted. They are a boat railway to overcome the obstructions at the Dalles of the Columbia river in Oregon and Washington; another is for a canal to connect Lake Union and Washington with Puget Sound, and the third is to begin the construction of a lock in the Mississippi river between St. Paul and Minneapolis to extend the head of navigation to the last named place.

The boat railway project contemplates a hydraulic lift to raise steamboats out of the water, placing them upon a large tramway car running upon eight or more tracks, transporting them thirteen miles and returning them to the water. It is expected that this gigantic railway and the necessary machinery will be completed in four years. The cost is about $2,000,000. The canal which is to connect the waters of Puget sound with the fresh waters of Lakes Union and Washington it is expected will be of great commercial benefit, because it will give ships an opportunity to anchor in fresh water after long voyages in the Pacific. Another benefit is to be gained by having naval vessels while not in commission stationed in the fresh water.

The lock to be placed in the Mississippi river between Minneapolis and St. Paul contemplates a lock and dam in the rapids midway between the two cities, which make feasible the Mississippi to Minneapolis. When the river and harbor bill passed the 51st Congress, the entire Mississippi river was put under continuing contract system. There remains quite a large unexpended balance set apart for the upper reach of the river, and it is this appropriation that will be diverted to the construction of the lock and dam.

SOCIETY OF AMERICAN ENGINEERS.

As an outcome of the engineering congress which was held at Chicago during the World's Fair, a permanent society has been formed, known as the Society for the Promotion of Engineering Education. The first meeting of this society will be held in Brooklyn from the 20th to the 23d of this month. This date has been selected because delegates to the American Society for the advancement of science will, at that time, be in that vicinity from all parts of the United States. The newly elected officers are: President, Professor Di Valson Wood, Stevens Institute; secretary, Professor J. E. Johnson, Washington University; treasurer, Professor Stormbull, University of Wisconsin. The society is designed to include members from all branches of engineering, civil, mechanical, mining, electrical, sanitary, etc. The electrical engineers were not at the World's Fair at the time the proposition was made to organize this general society, they having held a session at another place, but it is expected that they will all become members.

THE MIND EFFECTED BY THE WEATHER.

Dr. T. D. Crothers, of Hartford, says in *Science*.

"Very few persons recognize the sources of error that come directly from atmospheric conditions on experimenters and observers and others. In my own case I have been amazed at the faulty deductions and misconceptions which were made in damp, foggy weather, or on days in which the air was charged with electricity and thunder storms were impending. What seemed clear to me at these times appeared later to be filled with error. An actuary in a large insurance company is obliged to stop work at such times, finding that he makes so many mistakes which he is only conscious of later that his work is useless. In a large factory from ten to twenty per cent less work is brought out on damp days and days of threatening storm. The superintendent, in receiving orders to be delivered at a certain time, takes this factor into calculation. There is a theory among many persons in the fire insurance business that in states of depressing atmosphere greater carelessness exists and more fires follow. Engineers of railway locomotives have some curious theories of trouble, accidents and increased dangers in such periods, attributing them to the machinery."

THE GULF STREAM.

In the North Atlantic Pilot Chart for this month Lieutenant-Commander J. E. Pillsbury, U. S. Navy, thus explains the origin, action and movement of the gulf stream :

"In order to learn the action of the Gulf stream it is necessary briefly to enter the subject of its causes. Every navigator of its waters knows that at times it is stronger than at others, and that under the same apparent conditions of wind and weather the stream is variable in velocity and direction.

The greater regular variations are chiefly due to changes in the position of the moon—a daily variation governed by its time of transit, and a monthly variation following the changes in declination. Both of these can be predicted with considerable precision.

The unusual variations come from the force and direction of the wind and the difference in the height of the barometer within and without the Gulf of Mexico. A knowledge of the action of these forces and the way by which they tend to produce the unusual changes will enable the navigator to take advantage of immediate conditions and so shorten his passage from port to port.

The cause of the Gulf Stream, and of most ocean currents, is directly or indirectly due to wind. Every wind produces a slight movement of the water over which it blows, by its friction on the particles of the surface water. As the upper particles acquire a movement the same motion is transmitted to the lower particles, thus forming a current. Although every wind causes a current, it is only persistent or long continued wind from the same general direction that produces a current of sufficient volume to become permanent or to be felt for a considerable time after the wind has ceased. A strong gale may cause a current of half a knot, but its blow is of short duration and the current is shallow and consequently of but little volume. With the trades, predominating as they do from the eastward, and persistently blowing over a large area, the current set up extends to 70 or 80 fathoms depth, which maintains its average velocity in spite of the daily variation in its producing cause.

Any current, upon meeting an obstruction, must escape in some direction. The current from the southeast trades, reaches the South American coast in the vicinity of Cape St. Roque, and it thereupon divides into two branches, one flowing to the southward, along the coast of Brazil, and the other toward the West Indies. The current from the northeast trades, flowing in the general direction of the wind, meets the obstruction of the coast of South America and of the Windward Islands. The combined currents have a partial relief by an escape through the passages of the Windward Islands, while the remainder passes along the northern side of the West Indian Islands toward the coast of the United States. The current entering the Caribbean is driven to the westward until it meets the obstruction of the coast of Honduras. Here the escape is in two directions a part flowing to the southward and a portion toward the Straits of Yucatan.

There is another movement of the water which is more effective in producing a current along shore, and which probably contributes as much water to form the Gulf Stream as the surface current due to the friction of the wind. This is the water driven to leeward by the break of the waves. A gentle wind makes a small wave which breaks in a ripple and by so doing throws a small quantity of water in its direction. A strong wind makes a larger wave, and in a gale every break throws tons of water to leeward. Where the wind is blowing in the same direction over a large area, like the Caribbean Sea, the effect is a simultaneous movement of the surface toward the lee shore. In the case of the Caribbean, a strong shore current is produced toward the Straits of Yucatan and to the southward along the Mosquito coast. It is from this cause that violent shore currents are set up along the coast of Cape Cod, New Jersey, and North Carolina in northeast gales. The waves are thrown toward the shore, from which the escape of the water makes the strong current that has wrecked many a vessel.

The irregularities of the Gulf Stream due to the varying wind can not be predicted except in the most general way. An increase or decrease of the force of the trades is not felt at all, except at intervals of seasons, because the force of the current is the result of average conditions, and a temporary abnormally strong wind in the trade region will not materially change the average. The first part of a norther in the Gulf of Mexico will probably cause a strong stream current, because the water is driven toward the Cuban shore, from which it escapes through the Straits of Florida, causing the strong current. A wind blowing across the stream does not change the position of the current. It simply throws the heated water by the break of the waves, and transports it by friction beyond the usual limits, but the current of the stream holds to its fixed position. The presence of Gulf weed is in no way a sure indication of current, for it is carried more by the waves than by the current. A wind blowing across the stream may carry every particle of weed into the outside waters. It has been observed that Gulf weed is found well up toward Nantucket Shoals. A long continued southerly wind will, by the break of the waves, transport the weed into this locality, which is 150 or 200 miles from the current of the stream.

The barometer is a fruitful source of abnormal variations in current in the Straits of Florida, but it is doubtful if much of its effect is experienced in the Atlantic. A high barometer in the Gulf of Mexico, accompanied by a lower barometer in the Atlantic, causes a greater outflow in the Straits, and with the reverse barometric conditions, a weaker flow. The first influence of the difference in pressure is felt on the sides of the stream, where the normal current is weakest. Ordinarily there is a neutral zone of current, beginning at "The Elbow" near Carysfort Reef lighthouse and extending to Tortugas, in which the current is variable. With a high barometer in the Gulf the current in this zone may be steadily eastward, and, in the same conditions are of long duration, the effect of the barometer may be felt throughout the stream. A navigator approaching Tortugas from the westward, and having a high barometer, may expect a favorable current skirting the Florida Reefs, and consequently need not lay a course so far off shore in rounding the Peninsula. Bound to the southward, and approaching the Straits of Florida with a low barometer in the Atlantic, the closer aboard the reefs are held the less will be the current found.

The above constitute the irregular and unusual variations of the Gulf stream. The usual and normal current is subject to variations in velocity and somewhat also in direction, but these changes can be predicted with accuracy, and the position of the axis from off Havana to Hatteras is known. The average velocity is greatest at the axis, which is rarely in the middle of the current."

FOR LOADING COAL.

The McMyler Car-dumping Machine Co.'s system of handling loaded cars in putting cargoes of coal on board vessels will undoubtedly create as radical a change in the soft coal business of the lakes as occurred when the Brown hoisting machine was applied to ore. At the Ashtabula plant of Pickands, Mather & Co., who are interested with the builders of the machine, six big steamers were loading last week, and three of them, the Kearsarge, Choctaw and Pease, left with cargoes aggregating 6,500 tons, while the Pope was being loaded at the same port with one of the best rotary hoists on the lakes. The dispatch given the steamer Manola was most excellent. She was discharged of a cargo of 2,336 tons of ore and loaded with 1,421 tons of coal in a single day. A record of 360 tons loaded in 60 consecutive minutes has been made with the machine. More big steamers are booked for loads by these hoists this week and even better dispatch is expected.

A STRICT OLD LIGHT-HOUSE KEEPER.

Like all other governmental institutions, the rules and regulations in force at the Absecom light-house at Atlantic City are as strict and ironclad as those in vogue on a man-of-war, and this fact formed the basis of an amusing incident which occurred at Uncle Sam's big tower on Wednesday last, says the correspondent of the New York *World*. The light-house is open to visitors until 12 o'clock noon every day, but after that hour President Cleveland himself could not enter unless Maj. Wolf, the genial keeper, had first received special instructions from his departmental superiors.

It was shortly after noon on the day above mentioned, and the major, attired in the big white bib which the government furnishes him, was busily engaged in preparing his midday meal—for be it known that the major is as jolly an old bachelor as ever foreswore the matrimonial harness—when a quartet of dainty little summer girls appeared on the piazza of his diminutlve cottage. Between sundry snickers, occasioned by the frantic efforts of the major to get out of his bib, they explained that they wanted to go up in the big tower, and their disappointment was intense when informed that it was after closing hours and that they would have to call on the morrow.

A council of war was held on the porch and after many sidelong glances at the veteran keeper the daintiest and prettiest of the four advanced with a do.or-die expression on her pouting face and thus expressed herself :

"Now, look here, Mr. Major, we want to go up in that light-house, and if you will only let us we will all give you a real sweet kiss."

Now any one who knows the gallant custodian of Uncle Sam's beacon can imagine the effect which this proposal had upon him, for if there is one thing above another in which the major is a connoisseur, that thing is feminine loveliness. His snow white hair, mustache and imperial fairly curled with delight, while his military soul was racked by a mighty struggle "between love and duty." As usual in such cases, love conquered, and with a faintly whispered "I consent," the major fell from grace.

In a trice four demure little maidens had stepped up and planted resounding osculatory smacks on the bearded lips of the handsome but frail keeper. After a few moments spent in recuperating the major braced himself in a corner and said : "Now, ladies, you can go up in the tower, but not to-day ; call again to-morrow, before 12 m."

A gasp of astonishment, the stamp of four dainty boots, an indignant chorus of "the horrid thing !" from lips which had so recently pressed his own, caused the major's soul to seek the level of the floor. Then four angry beauties whisked from the house and the light-house romance was over.

NOTES.

In the armor-plate investigation by the House Naval Affairs Committee on Friday last Commodore Sampson created something of a sensation in a statement he made regarding armor plate No. 619, furnished by the Carnegie Co. From the Commodore's testimony it appears that two half plates were furnished to the Navy Department as the two halves of plate No. 619. The two supposed halves were tried at Indian Head and showed different tensile strength. Commodore Sampson said he believed that the supposed top half of No. 619 was from an entirely different plate, which assumption, he said, would at once remove all discrepancies from the argument.

The ramming of a derelict by the Atlanta with unexpected damage to the warship, as reported last week, has reawakened interest in the question of the value and dangers of ramming. Commander Harrington delivered a lecture at the Naval War College, a few days ago, on the place and office of a ram in a fleet. He did not allude to the Atlanta's experience, but Capt. Taylor, president of the college, in opening the discussion, said that he had seen a large craft ramming a smaller vessel, as the Atlanta had done. The result was that the ram went under the craft and raised her up, so that the extra weight on the bow of the ram elevated the stern, so that she was practically unmanageable and was easily taken by two small warships. This experience gave the cue to the discussion, in which several officers took part, and the general opinion was that small craft should not be rammed by large vessels, but attacked with guns, for ramming tactics between large and small craft might result very unexpectedly with most injury to the larger ship.

The construction of a steamer in an American yard on a foreign order is certainly an interesting incident, even though the steamer be not a very large one. The launching of such a ship would seem to be as fit an occasion for the participation of the President of the United States as the raising of the American flag over a ship purchased by Americans from foreign owners. The Neafie & Levy Ship & Engine Building Co., of Philadelphia, have launched the Purisima Concepcion for Menendez & Co., Cienfugos, Cuba, for whom they have already built three steamers. The Purisima Concepcion is of 1,300 gross tons, has twin screws and will make about 14 knots an hour. She will run between ports on the south coast of Cuba, carrying both freight and passengers. The firm for which she is built might have ordered their steamers from builders in Spain, to be truly patriotic, or from England for cheapness, or any other European country; that they ordered four of them from Philadelphia builders suggests that in proportion to the quality American steamers cannot be so very much more expensive than steamers built in Europe.

The Joseph Dixon Crucible Co., Jersey City, N. J., manufacturers of lead pencils, crucibles, stove polish, and other graphite products, have felt the necessity of stiffening the backbones of their salesman who have complained of competitors' cut prices, and do it after the following fashion. In times like these, when work is none too plenty, and the manufacturer is anxious for orders, and the salesman likewise, there is great temptation to cut prices for the sake of getting a quantity of business, and thereby deluding ourselves into the idea that we are prosperous because we are busy, forgetful of the fact that the more business one does at a loss the slimmer will be the bank account at the end of the year. Prices once broken down are hard to re-establish, and it is even doubtful if they can be re-established. Furthermore, a manufacturer who once gets the reputation of making cheap goods will find it difficult to obtain good prices even for his best goods, and fine products at good prices are always in fair demand at all times. There is neither money or reputation to be gained in doing work for less than a fair price, and the very men who profit by beating the salesman down, and by inducing him to enter their order at cut throat competition prices, respect him less, and respect his house less than if he had stuck manfully to the principle that first-class goods demand a fair price.

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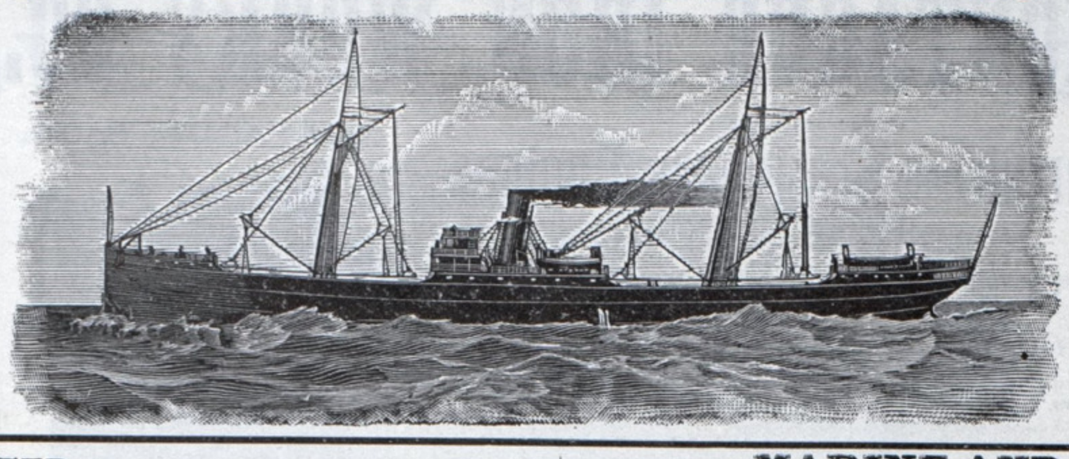

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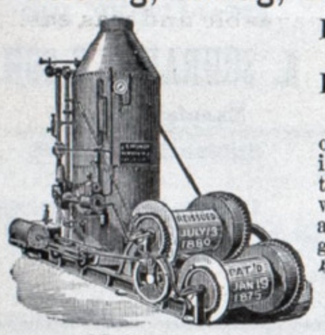

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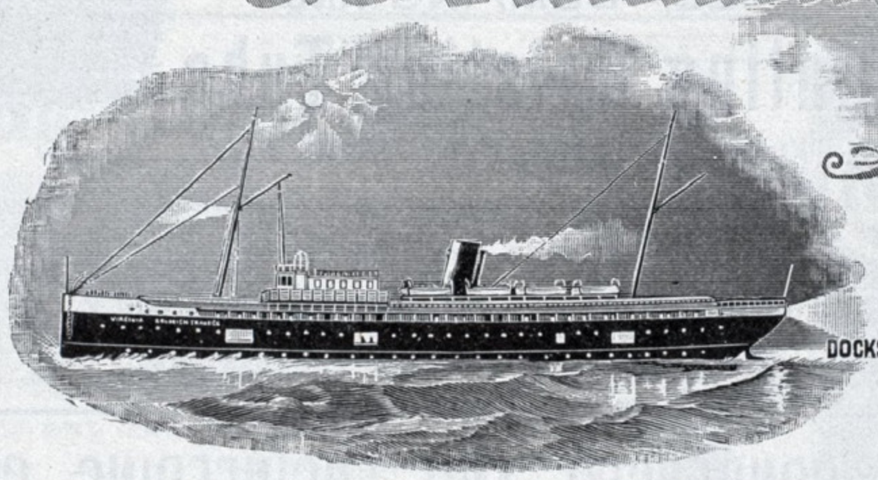

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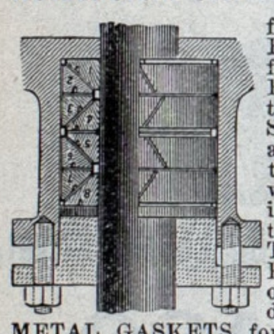

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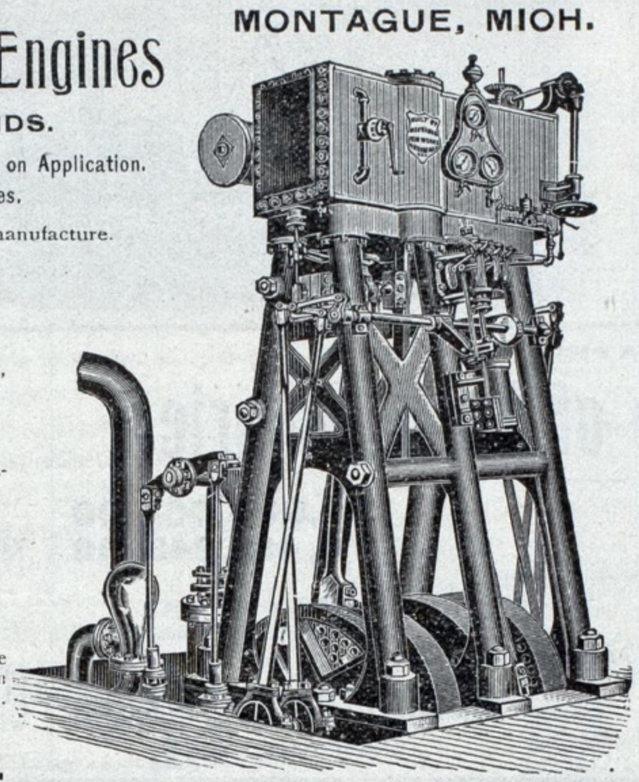

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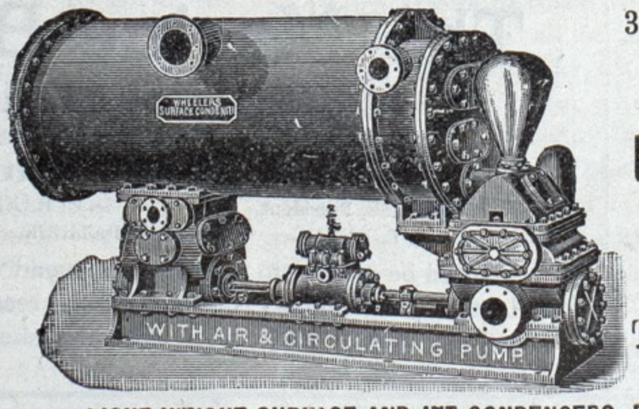

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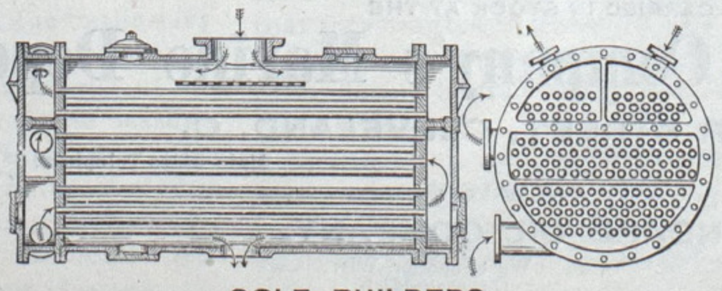

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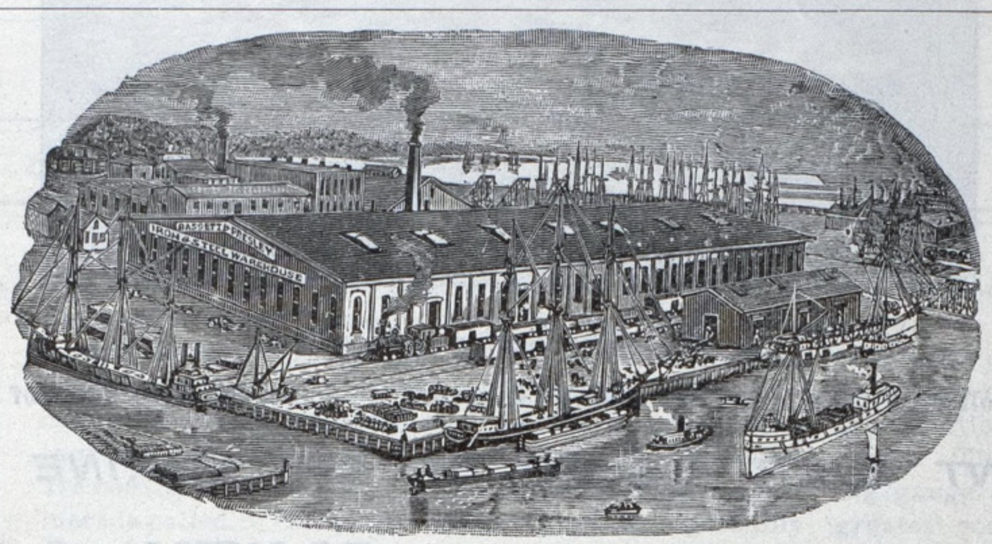

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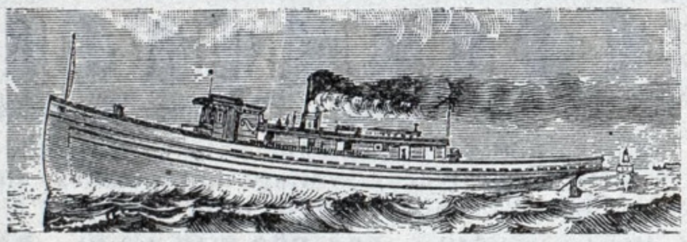

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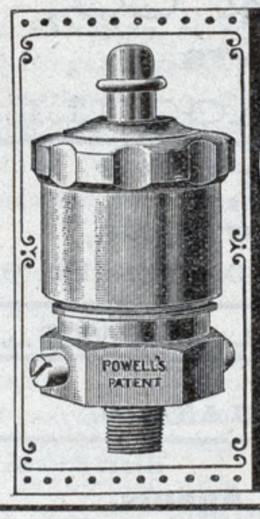

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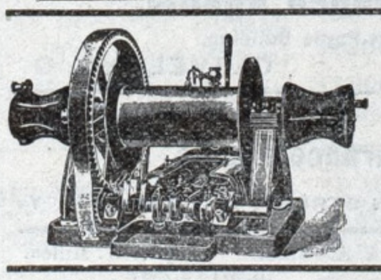

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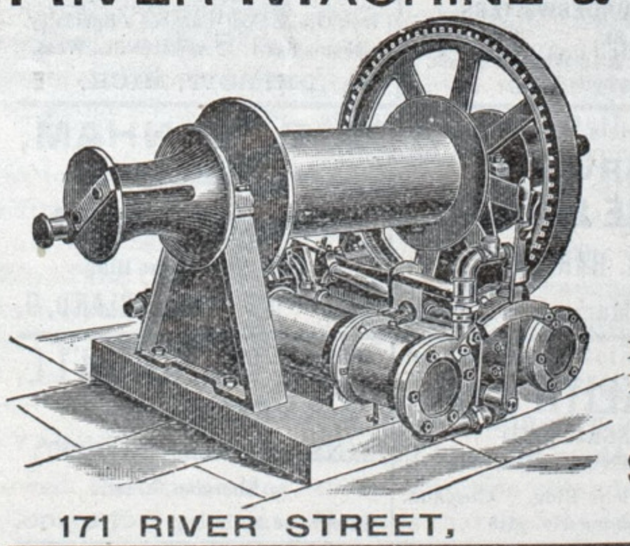

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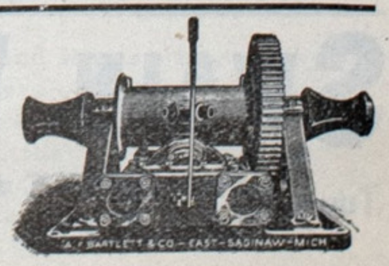

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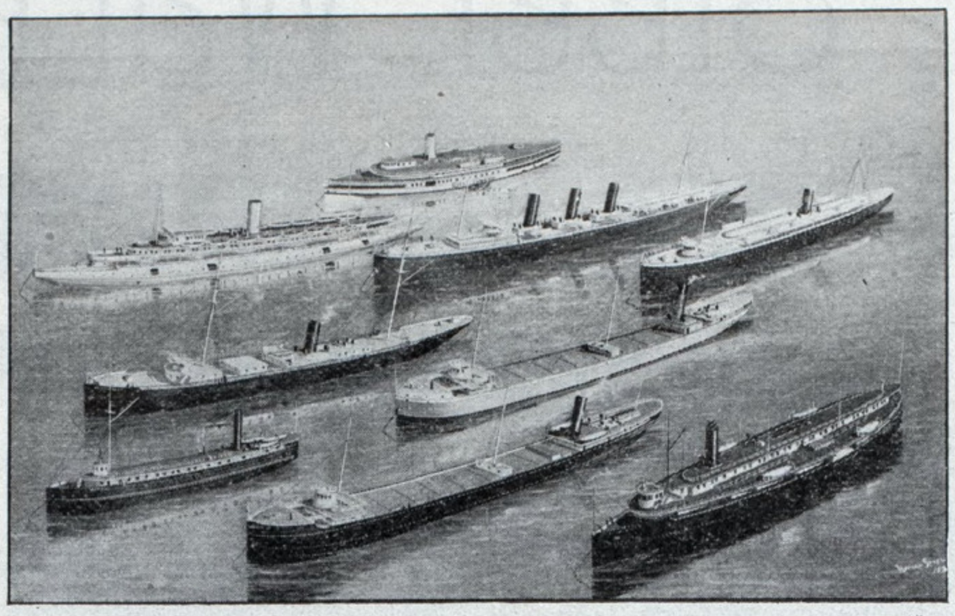

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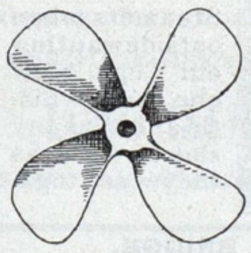

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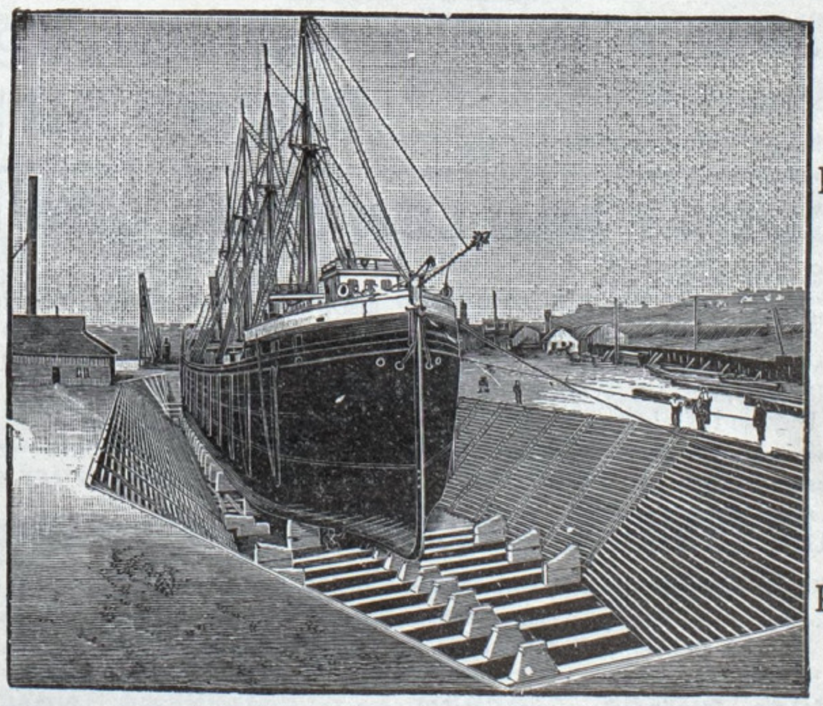

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